

Caroline A. Ross

Professor

Department of Materials Science and Engineering
Massachusetts Institute of Technology, Room 13-4005
77 Massachusetts Avenue, Cambridge MA 02139

phone: 617-258-0223
caross@mit.edu

Education

Cambridge University,	Cambridge, UK	Materials Science and Metallurgy	B.A. 1985
Cambridge University,	Cambridge, UK	Materials Science and Metallurgy	Ph.D. 1988
Harvard University,	Cambridge, MA, USA	Postdoctoral Fellow, Engineering and Applied Sciences	1989-1990

Appointments

Massachusetts Institute of Technology	Professor	2004-current
	Interim Department Head, DMSE	2023-2024
Massachusetts Institute of Technology	Associate Professor	2000-2004
Massachusetts Institute of Technology	Assistant Professor	1997-2000
Komag Inc.	Engineer	1991-1997

Fellow of American Physical Society, Institute of Physics (UK), Materials Research Society, and IEEE

Research Interests

Magnetic and multiferroic oxides and nanocomposites; self-assembly of block copolymers for nanofabrication

Selected publications (out of ~500, h-index = 89, 31,000 citations)

An antisite defect mechanism for room temperature ferroelectricity in orthoferrites, Shuai Ning, Abinash Kumar, Konstantin Klyukin, Eunsoo Cho, Jong Heon Kim, Tingyu Su, Hyun-Suk Kim, James M. LeBeau, Bilge Yildiz and Caroline A. Ross, **Nat. Commun.** 12 4298 (2021)

Relativistic Kinematics of a Magnetic Soliton, Lucas Caretta, Se-Hyeok Oh, Takian Fakhru, Dong-Kyu Lee, Byung Hun Lee, Se Kwon Kim, Caroline A. Ross, Kyung-Jin Lee, and Geoffrey S. D. Beach, **Science** 370(6523) p1438-1442 (2020)

Interface-driven chiral magnetism and current-driven domain walls in insulating magnetic garnets, Can Onur Avci, Ethan Rosenberg, Lucas Caretta, Felix Büttner, Maxwell Mann, Colin Marcus, David Bono, Caroline A. Ross and Geoffrey S. D. Beach, **Nature Nanotechnology** 14 561–566 (2019)

Monolithic integration of broadband optical isolators for polarization-diverse silicon photonics, Yan Zhang, Qingyang Du, Chuangtang Wang, Takian Fakhru, Shuyuan Liu, Longjiang Deng, Duanni Huang, Paolo Pintus, John Bowers, Caroline A. Ross, Juejun Hu, and Lei Bi, **Optica** 6(4) 473-478 (2019)

Current-Induced Switching in a Magnetic Insulator, Can Onur Avci, Andy Quindeau, Chi-Feng Pai, Maxwell Mann, Lucas Caretta, Astera S. Tang, Mehmet C. Onbasli, Caroline A. Ross, and Geoffrey S. D. Beach, **Nature Materials** 15(12), 309–314 (2017)

Control and Local Measurement of the Spin Chemical Potential in a Magnetic Insulator, Chunhui Du, Toeno Van der Sar, Tony X. Zhou, Pramey Upadhyaya, Francesco Casola, Huiliang Zhang, Mehmet C. Onbasli, Caroline A. Ross, Ronald L. Walsworth, Yaroslav Tserkovnyak, Amir Yacoby, **Science** Vol. 357, Issue 6347, pp. 195-198 (2017)

Templating Three-Dimensional Self-Assembled Structures in Bilayer Block Copolymer Films, A.T.K. Ghariehal, K.W. Gotrik, A.F. Hannon, A. Alexander-Katz, C.A. Ross, K. K. Berggren, **Science** 336 1294 (2012)

On-chip optical isolation in monolithically integrated nonreciprocal optical resonators, Lei Bi, Juejun Hu, Peng Jiang, Dong Hun Kim, Gerald F. Dionne, Lionel C. Kimerling and C. A. Ross, **Nature Photonics** 5, 758–762 (2011)

Complex self-assembled patterns using sparse commensurate templates with locally varying motifs, Joel K. W. Yang, Yeon Sik Jung, Jae-Byum Chang, Caroline A. Ross, and Karl K. Berggren, **Nature Nanotechnology** 5, 256-260 (2010)

Graphoepitaxy of self-assembled block copolymers on 2D periodic patterned templates, Ion Bitu, Joel K.W. Yang, Yeon Sik Jung, Caroline A. Ross, Edwin L. Thomas, Karl K. Berggren, **Science** 321 (5821) p939-943 (2008)

Nanostructure Engineering by Templated Self-Assembly, J.Y. Cheng, C.A. Ross, A. Mayes, **Nature Materials** 3 823-8 (2004)

Formation of a cobalt magnetic dot array via block copolymer lithography, J.Y. Cheng, C.A. Ross, V.Z.H. Chan, E.L. Thomas, R.G.H. Lamertink and G.J. Vancso, **Advanced Materials** 13 1174-8 (2001)

Other Activities

- **Organizations:** Fellow, American Physical Society; Fellow, Institute of Physics (UK); Fellow, Materials Research Society; Fellow, IEEE; Secretary/Treasurer, APS Topical Group on Magnetism, 2004-08; Member-at-Large, Executive Committee, APS Division of Condensed Matter Physics 2004-07; Editorial Board, J. Physics D: Applied Physics 2004-10; Appl. Phys. Lett/J. Appl Phys. 2009-14; J. Magn. Magn. Mater. 2009-14; Councillor, Materials Research Society 1999-2001; Executive Committee, 2001.
- **Conferences and Journals:** Chair, MMM (Magnetism and Magnetic Materials) Conference 2011; Publications Chair, Intermag 2003; Publications Editor, Intermag 2000, Joint Intermag/MMM 2001, and Intermag 2002 Conferences; Program Cttee, JEMS Conferences 2009-; EIPBN 2009-; Meeting Chair, Materials Res. Soc. Spring 1998 Mtg., and Symposium co-organizer, 1994, 1995, 2024, 2025
- **Books/patents:** Edited two books; 21 U.S. patents awarded, >500 publications.

Publications of Caroline A. Ross

Journal Articles

1. Ross, C.A. and J.E. Evetts, "A model for electromigration behavior in terms of flux divergences," *Scripta Metall.* 21, 1077-82 (1987)
2. Schwarzenberger, A.P., C.A. Ross, J. E. Evetts and A. L. Greer, "Electromigration in the presence of a temperature gradient: Experimental study and modeling," *J. Electr. Mater.* 17 (5), 473-7 (1988)
3. Ross, C.A., R.E. Somekh and J.E. Evetts, "A temperature-gradient technique for measuring the activation energy for electromigration," *Thin Solid Films*, 173 L129-133, (1989)
4. Ross, C.A., J.S. Drewery, R.E. Somekh and J.E. Evetts, "The effect of anodization on the electromigration drift velocity in aluminum films," *J. Appl. Phys.* 66, 2349-55 (1989)
5. Goldman, L.M., C.A. Ross, W. Ohashi, D. Wu and F. Spaepen, "A new dual-bath technique for electrodeposition of short repeat-length multilayers," *Appl. Phys. Lett.* 55, 2182-4 (1989)
6. Ross, C.A., J. S. Drewery, R. E. Somekh and J. E. Evetts, "Electromigration and mechanical stress in aluminum conductor tracks passivated by anodization," *J. Electron. Mater.* 19(9), 911-8 (1990)
7. Ross, C.A., D.T. Wu, L.M. Goldman and F. Spaepen, "Measurements of interdiffusion in electrodeposited nickel-phosphorus multilayers," *J. Appl. Phys.* 72, 2773-80 (1992)
8. Ross, C.A., L. M. Goldman and F. Spaepen, "An electrodeposition technique for producing multilayers of nickel-phosphorus and other alloys," *J. Electrochem. Soc.*, 140 (1), 91-8 (1993)
9. Ross, C.A., "Anisotropic stress in window-plated permalloy thin films," *IEEE Trans. Mag.* 29 (5), 2266-72 (1993)
10. Ross, C.A., M.E. Schabes, R. Ranjan and T. Chen, "The role of stress- induced anisotropy in longitudinal thin film magnetic recording media", *J. Applied Physics* 79, 5342-4 (1996)
11. Ross, C.A., "Properties of R.F sputtered alumina films on flat and grooved substrates," *J. Vac. Sci. Technol. A* 14 (4), 2511-6 (1996)

12. Tang, K., M.R. Visokay, C.A. Ross, R. Ranjan, T. Yamashita and R. Sinclair, "Lorentz transmission electron microscopy study of micromagnetic structures in real computer hard disks," , IEEE Trans. Mag. 32 (5) 4130-2 (1996)
13. Ross, C.A., T. Nolan, R. Ranjan and D. Lu, "The role of NiAl underlayers in longitudinal recording media," J. Appl. Phys. 81(11) 7441-4 (1997)
14. Tang, K., M.E. Schabes, C.A. Ross, L. He, R. Ranjan, T. Yamashita and R. Sinclair, "Magnetic clusters, intergranular exchange interaction and their microstructural basis in thin film longitudinal media", IEEE Trans. Magn., 33 4074-6 (1997)
15. Ross, C.A., F.M. Ross, G. Bertero and K. Tang, "Microstructural evolution and thermal stability of thin CoCrTa/Cr films for longitudinal recording media," IEEE Trans. Magn. 34 282-92 (1998)
16. Wittig, J.E., T.P. Nolan, M. Schabes, C.A. Ross, K. Tang, R. Sinclair and J. Bentley, "Chromium segregation in CoCrTa/Cr thin films for longitudinal recording media," IEEE Trans. Magn. 34 1564-6 (1998)
17. Farhoud, M., M. Hwang, H.I. Smith, J.M. Bae, K. Youcef-Toumi and C.A. Ross, "Fabrication of large area nanostructured magnets by interferometric lithography", IEEE Trans. Magn. 34 1087-9 (1998)
18. Savas, T.A., M. Farhoud, M. Hwang, H.I. Smith and C.A. Ross, "Properties of large-area nanomagnet arrays with 100 nm period made by interferometric lithography", J. Appl. Physics 85 6160-2 (1999)
19. Twisselmann, D.J., M. Farhoud, H.I. Smith and C.A. Ross, "In-plane magnetic anisotropy in CoCrPt and CoCrTa films deposited onto patterned silicon substrates", J. Appl. Physics 85 4292-4 (1999)
20. Ross, C.A., T.A. Savas, H.I. Smith and R. Chantrell, "Modelling of hysteresis loops of arrays of 100 nm period nanomagnets", IEEE Trans. Magn. 35 3781-3 (1999)
21. Farhoud, M., J. Ferrera, A.J. Lochtefeld, M.L. Schattenburg, C.A. Ross and H.I. Smith, "Fabrication of 200nm period nanomagnet arrays using interferometric lithography and a negative resist", J. Vac. Sci. Technol. B17 3182-5 (1999)
22. Ross, C. A., H.I. Smith, T. Savas, M. Schattenburg, M. Farhoud, M. Hwang, M. Walsh, M. Abraham, R. Ram "Fabrication of Patterned Media for High Density Magnetic Storage", J. Vac. Sci. Technol. B17 3168-76 (1999) [abstract also appears in Microelectr. Eng. 53 67 (2000)]

23. Wang J.Q., L.M. Malkinski, Y. Hao, C.A. Ross, J.A. Wiemann and C. O'Connor, "Fabrication of pseudo-spin-valves and 100 nm sized periodic elements for magnetic memory application", *Mater. Sci. Eng.* B76 1-5 (2000)
24. Hwang, M. M.C. Abraham, T.A. Savas, H.I. Smith, R.J. Ram and C.A. Ross "Magnetic force microscopy study of interactions in 100 nm period nanomagnet arrays", *J. Appl. Phys.* 87 5108-10 (2000)
25. Farhoud M., H.I. Smith, M. Hwang and C.A. Ross "The effect of aspect ratio on the magnetic anisotropy of particle arrays", *J. Appl. Phys.* 87 5120-2 (2000)
26. Malkinski, L.M., J-Q. Wang, W.L. Zhou, J.M. MacLaren and C.A. Ross, "Improvement of giant magnetoresistance performance of a metal layered structure", *J. Appl. Phys.* 87 6394-6 (2000)
27. Hao Y., M. Walsh, C.A. Ross, H.I. Smith, J. Wang, L. Malkinski, "In-plane anisotropy in arrays of magnetic ellipses", *IEEE Trans. Magn.* 36 2996-8 (2000)
28. Shima M., A.C. Ford and C.A. Ross, "Crystallographic and magnetic properties of Cr/CoCr(Ta,Pt) films produced by pulsed laser deposition", *IEEE Trans. Magn.* 36 2321-3 (2000); Correction 37 3079 (2001)
29. Twisselmann D, Y.J. Shine and C.A. Ross, "Correlation of stress and magnetic anisotropy in Cr/CoCrPt films grown on textured substrates", *IEEE Trans. Magn.* 36 2324-6 (2000)
30. Hsu C-C., R.S. Indeck, A. Jander, M.W. Muller, C.A. Ross, and D.J. Twisselmann, "MFM observation of magnetization reversal process in recording media with lithographically defined texture", *IEEE Trans. Magn.* 36 2327-9 (2000)
31. Hwang M., M. Farhoud, Y. Hao, M. Walsh, T.A. Savas, H.I. Smith, C.A. Ross, "Major hysteresis loop modelling of two-dimensional arrays of single-domain particles", *IEEE Trans. Magn.* 36 3173-5 (2000)
32. Walsh M., Y. Hao, C.A. Ross, H.I. Smith, "Optimization of a lithographic and ion beam etching process for nanostructuring magnetoresistive thin film stacks", *J. Vac. Sci. Technol.* B18 3539-3543 (2000)
33. Ross C.A., R. Chantrell, M. Hwang, M. Farhoud, T.A. Savas, Y. Hao, H.I. Smith, F.M. Ross, M. Redjda and F.B. Humphrey, "Incoherent magnetization reversal observed in 30-nm Ni particles", *Phys. Rev. B* 62 14252-8 (2000)
34. Ross C.A., M. Farhoud, M. Hwang, H.I. Smith, M. Redjda and F.B. Humphrey, "Micromagnetic behavior of conical ferromagnetic particles", *J. Appl. Phys.* 89 1310-9 (2001)

35. Castaño F. J., Y. Hao, S. Haratani, C.A. Ross, B. Vögeli, M. Walsh and Henry I. Smith, "Magnetic Switching in 100nm Patterned Pseudo Spin Valves", IEEE Trans. Magn. 37 2073-5 (2001)
36. Hwang M., M. Redjda, F. B. Humphrey, and C. A. Ross, "Remanent state studies of conical magnetic particles", J. Appl. Phys. 89 7582-4 (2001)
37. Cheng J.Y., C.A. Ross, V.Z.H. Chan, E.L. Thomas, R.G.H. Lamertink and G.J. Vancso, "Formation of a cobalt magnetic dot array via block copolymer lithography", Adv. Mater. 13 1174-8 (2001) [https://onlinelibrary.wiley.com/doi/10.1002/1521-4095\(200108\)13:15%3C1174::AID-ADMA1174%3E3.0.CO;2-Q](https://onlinelibrary.wiley.com/doi/10.1002/1521-4095(200108)13:15%3C1174::AID-ADMA1174%3E3.0.CO;2-Q)
38. Abraham, M.C., H. Schmidt, T.A. Savas, H.I. Smith, C.A. Ross and R. Ram, "Magnetic properties and interactions of single-domain nanomagnets in a periodic array", J. Appl. Phys. 89 5667-70 (2001)
39. C. Park, J.Y. Cheng, M.J. Fasolka, A.M. Mayes, C.A. Ross, E.L. Thomas, C. de Rosa, "Double textured cylindrical block copolymer domains via directional solidification on a topographically patterned substrate", Appl. Phys. Letts. 79 848-50 (2001)
40. F.J. Castaño, B. Vogeli, Y. Hao, S. Haratani, M. Hwang, Henry I. Smith, and C.A. Ross, "Magnetization reversal in sub-100 nm pseudo spin valve element arrays", Appl. Phys. Letts. 79 1504 (2001)
41. B. Vogeli, Henry I. Smith, F.J. Castaño, S. Haratani, Y. Hao and C.A. Ross, "Patterning processes for fabricating sub-100 nm pseudo spin valve structures", J. Vac. Sci. Technol. B 19 2753-6 (2001)
42. S.L. Whittenburg, N. Dao, C.A. Ross, "Micromagnetic studies of hysteresis in Nickel pillars", Physica B – Cond.Mat. 306 44-46 (2001)
43. C.A. Ross, S. Haratani, F.J. Castaño, B. Vogeli, S. Sumita, "Fabrication of MRAM structure and their magnetic properties", J. of the Society of Materials Engineering for Resources of Japan 14 p43-51 (2001)
44. Y. Hao, F. Castaño, C.A. Ross, B. Vogeli, M. Walsh, Henry I. Smith, "Magnetization reversal in lithographically patterned sub-200 nm Co particle arrays", J. Appl. Phys. 91 7989-91 (2002)
45. C.A. Ross, S. Haratani, F.J. Castaño, Y. Hao, M. Hwang, M. Shima, J.Y. Cheng, B. Vogeli, M. Farhoud, M. Walsh, H.I. Smith, "Magnetic behavior of lithographically patterned particle arrays", J. Appl. Phys. 91 6848-53 (2002)
46. F.J. Castaño, Y. Hao, C.A. Ross, B. Vogeli, Henry I. Smith, S. Haratani, "Switching field trends in sub-100 nm pseudo spin valve arrays", J. Appl. Phys. 91 7317-9 (2002)

47. M. Shima, T. Tepper, C.A. Ross, "Magnetic properties of chromium oxide and iron oxide films produced by pulsed laser deposition J. Appl. Phys. 91 7920-22 (2002)
48. N. Dao, S.L. Whittenburg, Y. Hao, C.A. Ross, L.M. Malkinski, J.Q. Wang, "Magnetization reversal of elliptical Co/Cu/Co pseudo-spin-valve dots", J. Appl. Phys. 91 8293-5 (2002)
49. C.A. Ross, M. Hwang, M. Shima, J.Y. Cheng, M. Farhoud, T.A. Savas, Henry I. Smith, W. Schwarzacher, F.M. Ross, F.B. Humphrey and M. Redjda, "Micromagnetic behavior of electrodeposited cylinder arrays", Phys. Rev. B 65 144417 (2002)
50. C.A. Ross, M. Hwang, M. Shima, Henry I. Smith, M. Farhoud, T.A. Savas, W. Schwarzacher, H. Neal Bertram, F.B. Humphrey and M. Redjda, "Magnetic properties of arrays of electrodeposited nanowires", J. Magn. Magn. Mater. 249 200-7 (2002)
51. T. Tepper, C.A. Ross, "Pulsed laser deposition of iron oxide films", J. Appl. Phys. 91 4453-6 (2002)
52. J.Y. Cheng, C.A. Ross, E.L. Thomas, R.G.H. Lamertinck, G.J. Vancso "Magnetic properties of large area particle arrays made by block copolymer lithography", IEEE Trans. Magn. 38 2541-3 (2002)
53. D. Twisselmann, P.G. Chambers, C.A. Ross, G. Khanna, B. Clemens, "The Origins of Substrate-Topography-Induced Magnetic Anisotropy in Sputtered Cobalt Alloy Films", J. Appl. Phys. 92 3223-30 (2002)
54. M. Hwang, M. Shima, C.A. Ross, C. Seberino, H.N. Bertram, "Effect of temperature and cubic anisotropy on the switching field of cylindrical Ni particles", J. Appl. Phys. 92 1018-23 (2002)
55. T. Deng, Sam Ha, J.Y. Cheng, C.A. Ross, E.L. Thomas, "Micropatterning of block copolymer in solution", Langmuir 18 6719-22 (2002)
56. J.Y. Cheng, C.A. Ross, E.L. Thomas, H.I. Smith, G.J. Vancso "Fabrication of nanostructures with long-range order using block copolymer lithography", Appl. Phys. Letts. 81 3657-9 (2002)
57. F.J. Castaño, S. Haratani, Y. Hao, C.A. Ross, H.I. Smith, "Giant Magnetoresistance in 60 – 150 nm wide pseudo spin-valve nanowires", Appl. Phys. Letts. 81 2809-11 (2002)
58. M Shima and C.A. Ross, "Development of microstructure in Cr and Cr/CoCrPt films made by pulsed laser deposition", J. Appl. Phys. 93 945-50 (2003)

59. X. Zhu, P. Grutter, Y. Hao, F.J. Castaño, S. Haratani, C.A. Ross, B. Vogeli, H.I. Smith, "Magnetization switching in 70 nm wide pseudo-spin-valve nanoelements", J. Appl. Phys. 93 1132-6 (2003)
60. J.I. Abes, R.E. Cohen, C.A. Ross, "Selective growth of Cobalt nanoclusters in domains of block copolymer films", Chemistry of Materials 15 1125-31 (2003)
61. M. Shima, M. Hwang, C.A. Ross, "Magnetic behavior of amorphous CoP cylinder arrays", J. Appl. Phys. 93 3440-4 (2003)
62. M. Redjda, M.F. Ruane, F.B. Humphrey, F.J. Castaño and C.A. Ross, "Micromagnetic characterization of the reversal of Co/Cu/Co thin film elements", J. Appl. Phys. 93 7933-5 (2003)
63. Y. Hao, C.A. Ross, H.I. Smith, "Thermal stability of lithographically patterned sub-200 nm NiFe elements", J. Appl. Phys. 93 7909-11 (2003)
64. F.J. Castaño, B. Nelson-Cheeseman, R.C. O'Handley, C.A. Ross, C. Redondo, F. Castaño, "Structure and thermomagnetic properties of polycrystalline NiMnGa thin films", J. Appl. Phys. 93 8492-4 (2003)
65. F.J. Castaño, Y. Hao, S. Haratani, C.A. Ross, B. Vogeli, H.I. Smith, C. Sanchez-Hahnke, C.C. Kao, X. Zhu, P. Grutter "Magnetic force microscopy and x-ray scattering study of 70 x 550 nm pseudo-spin-valve nanomagnets", J. Appl. Phys. 93 7927-9 (2003)
66. T. Tepper, F. Ilievski, C.A. Ross, T.R. Zaman, R.J. Ram, S.Y. Yung, B. Stadler, "Magneto-optical properties of iron oxide films", J. Appl. Phys. 93 6948-50(2003)
67. X. Zhu, P. Grutter, V. Metlushko, Y. Hao, F. Castaño, C.A. Ross, B. Ilic, H.I. Smith, "The construction of hysteresis loops of single-domain elements and coupled permalloy ring arrays by magnetic force microscopy", J. Appl. Phys. 93 8540-2 (2003)
68. A.C. Ford, T. Tepper, C.A. Ross, "Reactive pulsed laser deposition of silica and doped silica thin films", Thin Solid Films 437 211-6 (2003)
69. T.Y. Tsui, C.A. Ross and G. Pharr, "A method for making substrate-independent hardness measurements of soft films on hard substrates by nanoindentation," J. Materials Research 18 1383-91 (2003)
70. F. Ilievski, T. Tepper, C.A. Ross "Optical and Magneto-optical properties of γ -iron oxide made by reactive pulsed laser deposition", IEEE Trans Magn. 39 3172-4 (2003)
72. T. Tepper, C.A. Ross, "Pulsed laser deposition and refractive index measurement of fully-substituted bismuth iron garnet films", J. Crystal Growth 255 324-331 (2003)

73. F.J. Castaño, C.A. Ross, C. Frandsen, A. Eilez, D. Gil, H.I. Smith, M. Redjda, F.B. Humphrey "Metastable states in magnetic nanorings", Phys Rev B. 67 184425 (2003)
74. J.Y. Cheng, C.A. Ross, E.L. Thomas, H.I. Smith, G.J. Vancso "Templated self-assembly of block copolymers: Effect of substrate topography", Adv. Mater. 15(19) 1599-1602 (2003) [selected for inside cover picture]
75. C. Sanchez-Hanke, F.J. Castaño, Y. Hao, S.L. Hulbert, C.A. Ross, C. Frandsen, H.I. Smith, C.C. Kao, "Soft x-ray resonant scattering: an element-specific tool to characterize patterned arrays of nanomagnets", IEEE Trans Magn. 39 3450-2 (2003) [selected as Brookhaven Nat. Lab. Research Highlight]
76. F.J. Castaño, C.A. Ross, A. Eilez, "Magnetization reversal in elliptical-ring nanomagnets", J. Phys. D: Appl. Phys. 36 2031-5 (2003)
77. J.I. Abes, R.E. Cohen, C.A. Ross, "Selective growth of Iron, Iron-Cobalt and Cobalt-Nickel nanoparticles in domains of block copolymer films", Mat. Sci. Eng. C 23(5) 641-650 (2003)
78. E. Lyons, R. O'Handley, C.A. Ross, "Magnetic anisotropy of epitaxial Cu/Ni/Cu nanolines", J. Appl. Physics 95 6711-3 (2004)
79. T. Tepper, C.A. Ross, G.F. Dionne, "Microstructure and optical properties of pulsed laser deposited iron oxide films", IEEE Trans. Magn. 40 1685-90 (2004)
80. F. J. Castaño, A. Eilez, W. Jung, C. Frandsen, C.A. Ross, "Stability of Magnetic configurations in 160-520 nm diameter ferromagnetic rings", Phys. Rev. B 69 144421 1 – 7 (2004)
81. Wonjoon Jung, F. J. Castaño, C. A. Ross, Rajesh Menon, Amil Patel, Euclid E. Moon, and Henry I. Smith, "Elliptical-ring magnetic arrays fabricated using Zone-Plate-Array Lithography", J. Vac. Sci. Technol. B 22 3335-8 (2004)
82. J. Cheng, W. Jung, C.A. Ross, "Magnetic nanostructures from block copolymer lithography: hysteresis, thermal stability and magnetoresistance", Phys. Rev. B 70 064417 p1-9 (2004)
83. J. Cheng, C.A. Ross, A. Mayes, "Nanostructure Engineering by Templated Self-Assembly", Nature Materials 3 823-8 (2004)
84. F.J. Castaño, K. Nielsch, C.A. Ross, J.W.A. Robinson, R. Krishnan, "Anisotropy and magneto-transport in ordered magnetic antidot arrays", Applied Physics Letters 85 2872-4 (2004)

85. H.J. Jang, P. Eames, E. Dan Dahlberg, M. Farhoud, C.A. Ross, "Magnetostatic interaction of cylindrical single domain nanopillars in quasi-static magnetization states", *Applied Physics Letters* 86 023102 1-3 (2005)
86. C.A. Ross, F.J. Castaño, E. Rodriguez, S. Haratani, B. Vögeli and Henry I. Smith, "Size-dependent switching of multilayer magnetic elements", *J. Applied Physics* 97, 053902 (2005)
87. T. Moore, T.J. Hayward, D.H.Y. Tse, J.A.C. Bland, F.J. Castaño, C.A. Ross, "Magnetization reversal in individual micrometer sized polycrystalline permalloy rings", *J. Appl. Physics*, 97, 063910 1-5 (2005)
88. Wonjoon Jung, F. J. Castaño, D. Morecroft, C. A. Ross, Rajesh Menon, and Henry I. Smith, "Magnetization Reversal in Single-layer and Exchange-biased Elliptical-ring Arrays", *J. Appl. Phys.* 97 10K113 1-3 (2005)
89. C. Pike, C.A. Ross, R.T. Scalettar, G. Zimanyi, "First order reversal curve diagram analysis of a perpendicular nickel nanopillar array", *Phys. Rev. B* 71 134407 1-12 (2005)
90. K. Nielsch, F.J. Castaño, S. Matthias, W. Lee, C.A. Ross, "Synthesis of Cobalt/Polymer multilayer nanotubes", *Advanced Engineering Materials* 7 217-221 (2005) [cover picture]
91. M. Pardavi-Horvath, C. A. Ross, and R. D. McMichael, "Shape Effects in the Ferromagnetic Resonance of Nanosize Rectangular Permalloy Arrays", *IEEE Trans. Magn.* 41 3601-3 (2005)
92. T. Kasama, R. Dunin-Borkowski, S.B. Newcomb, M.R. McCartney, F.J. Castaño and C.A. Ross, "Off-axis electron holography of pseudo-spin-valve thin film magnetic elements", *J. Appl. Physics*, 98 013903 1-7 (2005)
93. Gerald F. Dionne, Gary A. Allen, Pamela R. Haddad, Caroline A. Ross, and Benjamin Lax, "Circular polarization and nonreciprocal propagation in magnetic media", *Lincoln Lab Journal* **15** 323-340 (2005)
94. K. Nielsch, F. J. Castaño, C. A. Ross, and R. Krishnan, Magnetic properties of template-synthesized cobalt/polymer composite nanotubes, *J. Appl. Phys.* 98, 034318 1-7 (2005)
95. A. Rajamani, G. Dionne, D. Bono, C.A. Ross, "Faraday rotation, ferromagnetism, and optical properties in Fe-doped BaTiO₃", *J. Appl. Physics* 98, 063907 1-5 (2005)
96. F. J. Castaño, D. Morecroft, W. Jung and C. A. Ross "Spin-dependent scattering in multilayered magnetic rings", *Phys. Rev. Letts.* 95 137201 1-4 (2005)

97. T J Bromwich, A. Kohn, A K Petford-Long, T Kasama, R Dunin-Borkowski, S Newcomb, C A Ross, "Remanent magnetization states and interactions in square arrays of 100 nm cobalt dots measured using transmission electron microscopy", J. Appl. Physics 98 053909 1-8 (2005)
98. T.A. Moore, T.J. Hayward, D.H.Y. Tse, J.A.C. Bland, F.J. Castaño, C.A. Ross, "Stochastic switching in individual micrometer-sized ferromagnetic rings", Physica B 372 164-7 (2006)
99. J.Y. Cheng, F. Zhang, H.I. Smith, G.J. Vancso, C.A. Ross, "Pattern registration between spherical block copolymer domains and topographical templates", Advanced Materials 18 587-601 (2006)
100. T.J. Hayward, T.A. Moore, D.H.Y. Tse, J.A.C. Bland, F.J. Castaño, C.A. Ross, "Exquisitely balanced thermal sensitivity of the stochastic switching process in macroscopic ferromagnetic rings", Phys. Rev. B 72 184430 1-6 (2005)
101. D. Morecroft, F. J. Castaño, W. Jung, C. A. Ross, Angular dependence of the giant magnetoresistance in multilayer rings with different contact configurations, J Appl. Phys. 99 08T104 1-3 (2006)
102. C.A. Ross, F.J. Castaño, D. Morecroft, W. Jung, Henry I. Smith, T.A. Moore, T.J. Hayward, J.A.C. Bland, T.J. Bromwich, and A.K. Petford-Long, Mesoscopic Thin Film Magnetic Rings (invited), J Appl. Phys. 99 08S501 1-6 (2006)
103. E. Lyons, R.C. O'Handley, C.A. Ross, Magnetic Anisotropy of Cu/Ni/Cu Nanolines, J Appl. Phys. 99 08R105 1-3 (2006)
104. J.Y. Cheng, E.L. Thomas, H.I. Smith, G.J. Vancso, C.A. Ross, "Templated self-assembly of block copolymers: top-down helps bottom-up", Adv. Mater. 18 2505-2521 (2006)
105. B. B. Maranville, R. D. McMichael, S.A. Kim, W. L. Johnson, C. A. Ross and J. Y. Cheng, Characterization of magnetic properties at edges by edge mode dynamics, J Appl Phys. 99 08C703 1-3 (2006)
106. T.J. Bromwich, A.K. Petford-Long, F.J. Castaño and C.A. Ross, Lorentz microscopy of elliptical magnetic rings, J Appl Phys. 99 08H304 1-3 (2006)
107. C. Redondo, S. Moralejo, F. Castaño, W. Lee, K. Nielsch, C. A. Ross and F. J. Castaño, Additive patterning of ion-beam-sputtered non-conformal $\text{Ni}_{80}\text{Fe}_{20}$ and $\text{Co}_{70}\text{Fe}_{30}$ magnetic films, Nanotechnology 17 2040-45 (2006)
108. D. Morecroft, F. J. Castaño, W. Jung, J. Feuchtwanger, and C. A. Ross, Influence of contact geometry on the magnetoresistance of elliptical rings, Appl. Phys. Letts. 88 172508 1-3 (2006)

109. Pattern Generation by Using Multi-Step Room-Temperature Nanoimprint Lithography, S. Harrer, J. K. W. Yang, K. K. Berggren, F. Ilievski, C. A. Ross, IEEE Trans. Nanotechnology 6(6) 639-45 (2007) (Best Student Paper Award, IEEE Nano 2006 conference, Cincinnati, OH, 7-06)
110. B.B. Maranville, R.D. McMichael, C.L. Dennis, C.A. Ross, J.Y. Cheng, Thin film edge property measurements by edge saturation, IEEE Trans. Magn. 42 2951-3 (2006)
111. W. Lee, R. Ji, C. A. Ross, U. Goesele, and K. Nielsch, Wafer-scale Ni imprint stamps for porous alumina membranes based on interference lithography, Small, 2 978-982 (2006)
112. J.Y. Cheng, V. Chuang, F. Zhang, A. Mayes, C.A. Ross, Self-assembled one-dimensional nanostructure arrays, Nano Letts. 6 2099-2103 (2006)
113. S. Moralejo, F.J. Castaño, C. Redondo, R. Ji, K. Nielsch, C.A. Ross, F. Castaño, Fabrication and magnetic properties of hexagonal arrays of submicron NiFe elongated nanomagnets, J. Magnetism and Magnetic Materials 316 e44-47 (2007)
114. G. Srajer, L. H. Lewis, S. D. Bader, C. S. Fadley, E. E. Fullerton, A. Hoffmann, J. B. Kortright, Kannan M. Krishnan, S. A. Majetich, C. A. Ross, M. B. Salamon, I. K. Schuller, T. C. Schulthess, J. Z. Sun, Nanomagnetism Advances Through X-ray Techniques, J. Magn. Magn. Mater. 307 1-31 (2006)
115. T. Hayward, J. Llandro, R.B. Balsod, J.A.C. Bland, F.J. Castaño, D. Morecroft, C.A. Ross, Reading and writing of vortex circulation in pseudo-spin-valve ring devices, Appl. Phys. Letts. 89 112510 1-3 (2006)
116. T.J. Bromwich, T. Kasama, R.K.K. Chong, R.E. Dunin-Borkowski, A.K. Petford-Long, O.G. Heinonen, C.A. Ross, Remanent magnetization states and interactions in nanopillars, Nanotechnology 17 4367-73 (2006)
117. M. Bolduc, A.R. Taussig, A. Rajamani, G.F. Dionne, C.A. Ross, Magnetism and magnetooptical effects in Ce-Fe oxides, IEEE Trans. Magn. 42 3093-5 (2006)
118. V.P. Chuang, J.Y. Cheng, T.A. Savas, C.A. Ross, Three-dimensional Self-assembly of spherical block copolymer domains into V-shaped grooves. Nano Letts. 6 (10), 2332-2337, (2006)
119. T.J. Hayward, J. Llandro, R.B. Balsod, J.A.C. Bland, D. Morecroft, F.J. Castaño, C.A. Ross, Switching behavior of individual pseudo-spin-valve ring structures, Phys. Rev. B 74 134405 1-7 (2006)
120. F.J. Castaño, D. Morecroft, C.A. Ross, Low field giant magnetoresistance in layered magnetic rings, Phys. Rev. B 74 224401 1-9 (2006)

121. W. Jung, F.J. Castaño, C.A. Ross, Vortex chirality in exchange biased elliptical magnetic rings, *Phys. Rev. Letts.* 97 247209 1-4 (2006)
122. T.J. Hayward, J. Llandro, F.D.O. Schackert, D. Morecroft, R.B. Balsod, J.A.C. Bland, F.J. Castaño and C.A. Ross, Measurement of variable reversal paths in electrically contacted pseudo-spin-valve rings, *J. Phys. D* 40 1273-9 (2007)
123. C.A.F. Vaz, T.J. Hayward, J. Llandro, F.D.O. Schackert, D. Morecroft, J.A.C. Bland, M. Klaui, M. Laufenberg, D. Backes, U. Rudiger, F.J. Castaño, C.A. Ross, L.J. Heyderman, F. Nolting, A. Locatelli, G. Faini, S. Cherifi, W. Wernsdorfer, Ferromagnetic nanorings, *J. Phys. Condens. Matter* 19 255207 1-14 (2007)
124. X.S. Gao, A.O. Adeyeye, S.Goolaup, N.Singh, W. Jung, F.J. Castaño, and C.A. Ross, Inhomogeneities in Spin States and Magnetization Reversal of Geometrically Identical Elongated Co Rings, *J. Appl. Phys.* 101, 09F505 1-3 (2007)
125. Filip Ilievski, Joy C. Perkinson, C. A. Ross, Magnetic reversal phenomena in Pseudo Spin Valve Films with Perpendicular Anisotropy, *J. Appl. Phys.* 101, 09D116 1-3 (2007)
126. Gerald F. Dionne, Alex R. Taussig, Martin Bolduc, and C. A. Ross, Mixed-Cation Designs of Magnetic Perovskites for Faraday Rotation at IR Wavelengths, *J. Appl. Phys.* 101, 09C524 1-3 (2007)
127. V. Sivakumar, S. Kumar, Y. Shao-Horn, C.A. Ross, Magnetic and Structural Investigation of Electrochemically Lithiated Magnetite Nanoparticles, *IEEE Trans. Magn.* 43 p3121-3 (2007)
128. F.Y. Ogrin, S.M. Weekes, B. Cubitt, A. Wildes, A. Drew, C.A. Ross, W. Jung, R. Menon, B. Toperverg, Polarized neutron reflectivity investigation of periodic magnetic rings, *IEEE Trans. Magn.* 43 p2731-3 (2007)
129. D. Morecroft, I. A. Colin, F. J. Castaño, J. A. C. Bland, C. A. Ross, Current-induced magnetization reversal in NiFe/Cu/Co/Au notched mesoscopic bars, *Phys. Rev. B* 76, 054449 (2007)
130. Yeon Sik Jung and C. A. Ross, Orientation-controlled Self-assembled Nanolithography using a Polystyrene-Polydimethylsiloxane Block Copolymer, *Nano Letts* 7 2046-2050 (2007)
131. A. Adeyeye, X. Gao, C.A. Ross, Magnetostatic coupling in arrays of elongated Ni₈₀Fe₂₀ rings, *JPhys D* 40 6479-6483 (2007)

132. J. Llandro, T. J. Hayward, D. Morecroft, J. A. C. Bland, F. J. Castaño, I. A. Colin, and C. A. Ross, Quantitative digital detection of magnetic beads using pseudo-spin-valve rings for multiplexed bioassays, *Appl. Phys. Lett.* 91, 203904 (2007)
133. W. Jung, F. J. Castaño, and C. A. Ross, Current-in-plane magnetoresistance of spin valve elliptical rings *Appl. Phys. Lett.* 91, 152508 (2007)
132. A. Taussig, G.F. Dionne, C.A. Ross, "Dependence of Faraday rotation and magneto-optical figure of merit on dielectric tensor elements in materials with uniaxial symmetry", *Phys. Rev. B* 77 012407 p1-4 (2008)
133. Lei Bi, Hyun-Suk Kim, Gerald F. Dionne, Scott A. Speakman, D. Bono and C. A. Ross, Structural, Magnetic and Magneto-optical Properties of Co Doped CeO_2 Films, *J. Appl. Phys.* 103, 07D138 (2008)
134. F. Y. Ogrin, E. Sirotkin, G. van der Laan, G. Beutier, C. A. Ross, W. Jung, R. Menon, Soft x-ray resonant magnetic scattering investigation of stable magnetic configurations in patterned rings, *J. Appl. Phys.* 103, 07E909 (2008)
135. Filip Ilievski, C. A. Ross, GJ Vancso, Magnetic Reversal Phenomena of Perpendicular Magnetic Islands Fabricated by Block Copolymer Lithography, *J. Appl. Phys.* 103, 07C520 p1-3 (2008)
136. S. Tacchi, M. Madami, G. Gubbiotti, G. Carlotti, W. Jung, C. A. Ross, Spin waves in exchange-biased NiFe/IrMn circular nanorings, *J. Appl. Phys.* 103, 07C103 (2008)
137. D. Navas, K.R. Pirota, P. Mendoza Zelis, D. Velazquez, C.A. Ross and M. Vazquez, Effects of the magnetoelastic anisotropy in Ni nanowire arrays, *J. Appl. Phys.* 103 07D523 (2008)
138. M. Pardavi-Horvath, P. E. Si, C.A. Ross, F. J. Castaño, B. Ng, and S. Moralejo, Configurational Stability of Patterned Magnetic Nanosystems, *J. Appl. Phys.* 103, 07D516 (2008)
139. R.D. McMichael, V.P. Chuang, C.A. Ross, Thickness dependence of magnetic film edge properties in Ni₈₀Fe₂₀ stripes, *J. Appl. Phys.* 103 07C505 (2008)
140. X.S. Gao, A.O. Adeyeye, C.A. Ross, Magnetization reversal process in elongated Co Rings with Engineered defects, *J. Appl. Phys.* 103 063906 p1-6 (2008)
141. V.P. Chuang, W. Jung, C.A. Ross, J.Y. Cheng, Oun-Ho Park, Ho-Cheol Kim, Multilayer magnetic antidot arrays from block copolymer templates, *J. Appl. Phys.* 103 074307 1-5 (2008)

142. Jeong Dae Suh, C. A. Ross, Dependence of the giant magnetoresistance ratio on the nano-oxide layer position in NiFe/Cu/Co pseudo-spin valve films, *Phys. Stat. Sol. (b)* 244 4474-7 (2007)
143. Vikram Sivakumar, Naoaki Yabuuchi, C. A. Ross, Yang Shao-Horn, Partially reversible changes in magnetic properties of CrO₂ nanoparticles through electrochemical cycling, *J. Appl. Phys.* 103 07D708 p1-3 (2008)
144. V. Sivakumar, C. A. Ross, N. Yabuuchi, Y. Shao-Horn, K. Persson and G. Ceder, Electrochemical Control of the Magnetic Moment of CrO₂, *J. Electrochemical Society* 155(8) p83-88 (2008)
145. C.A. Ross, F.J. Castaño, W. Jung, B.G. Ng, I.A. Colin, D. Morecroft, Magnetism in multilayer thin film rings, *J. Phys. D.* 41 113002 p1-6 (2008)
146. F.J. Castaño, B.G. Ng, I.A. Colin, D. Morecroft, W. Jung, C.A. Ross, Magnetoresistance of submicron multilayer Wheatstone bridges as a probe of magnetic reversal mechanism, *J. Phys. D* 41 132005 (2008)
147. Hyun-Suk Kim, Lei Bi, G. F. Dionne, and C. A. Ross, Structure, magnetic and magneto-optical properties of transition metal-doped transparent SnO₂ films, *Phys. Rev. B* 77 214436 (2008)
148. Y.S. Jung, W. Jung, C.A. Ross, Nanofabricated concentric ring structures by templated self-assembly of a diblock copolymer, *Nano Letts.* 8 2975-81 (2008)
149. Ion Bitá, Joel K.W. Yang, Yeon Sik Jung, Caroline A. Ross, Edwin L. Thomas, Karl K. Berggren, Graphoepitaxy of self-assembled block copolymers on 2D periodic patterned templates, *Science* 321 (5821) p939-943 (2008)
150. Lei Bi, Alexander R. Taussig, Hyun-Suk Kim, Lei Wang, Gerald F. Dionne, D. Bono, Gerbrand Ceder and C. A. Ross Structural, magnetic and optical properties of BiFeO₃ and Bi₂FeMnO₆ epitaxial thin films: an experimental and first principles study, *Phys. Rev. B* 78 104106 (2008)
151. V.P. Chuang, C.A. Ross, P. Bilalis, N. Hadjichristides, Nanoscale rings fabricated using Self-Assembled Triblock Terpolymer Templates, *ACS Nano* 2(10) 2007-2014 (2008)
152. Hyun-Suk Kim, Lei Bi, G. F. Dionne, and C. A. Ross, Structural, magnetic, and magneto-optical properties of transparent Fe-doped SrTiO₃ films, *Appl. Phys. Letts.* 93 092506 (2008)

153. S. Moralejo, F. J. Castaño, C. A. Ross, C. Redondo and F. Castaño, Collective switching of single-layer and exchange bias coupled nanomagnet arrays, *J. Phys. D* 41 195003 (2008)
154. G.M. Muller, G. Eilers, Z. Wang, M. Scherff, Ran Ji, K. Nielsch, C.A. Ross, M. Münzenberg, Magnetization dynamics in optically excited nanostructured nickel films, *New J. Phys.* 10(12) (2008) 123004 (9pp)
155. Y.S. Jung, W. Jung, H.L. Tuller, C.A. Ross, Nanowire conductive polymer gas sensor patterned using self-assembled block copolymer lithography, *Nano Letts.* 8 (11), 3776–3780 (2008)
156. Y.S. Jung, C.A. Ross, Solvent vapor induced tunability of self-assembled block copolymer patterns, *Adv. Mater.* 21 2540-45 (2009)
157. Y.J. Oh, C.A. Ross, Y.S. Jung, Y. Wang, C.V. Thompson, Co nanoparticle arrays made by templated solid-state dewetting, *Small* 5(7) 860-865 (2009)
158. Eric Verploegen, Tejia Zhang, Yeon Sik Jung, Caroline Ross, and Paula T. Hammond, Controlling the Morphology of Side Chain Liquid Crystalline Block Copolymer Thin Films through Variations in Liquid Crystalline Content, *Nano Letts.* 8 (10), 3434–3440 (2008)
159. C. A. Ross, Y.S. Jung, V.P. Chuang, F. Ilievski, J.K.W. Yang, I. Bitá, E.L. Thomas, H.I. Smith, K.K. Berggren, G.J. Vancso, J.Y. Cheng, Si-containing block copolymers for self-assembled nanolithography (invited), *J. Vac. Sci. Technol. B* 26(6) 2489-94 (2008)
160. Chunghee Nam, B.G. Ng, F. J. Castaño, and C. A. Ross, Effect of magnetic field direction on the remanent resistance levels and vortex chirality of a multilayered magnetic ring, *J. Appl. Phys.* 105 033918 (2009)
161. Chunghee Nam, B. G. Ng, F. J. Castaño, M. D. Mascaro and C. A. Ross, Current-driven vortex formation in a magnetic multilayer ring, *Appl. Phys. Letts.* 94, 082501 (2009)
162. K. L. Krycka, B. B. Maranville, J. A. Borchers, F. J. Castaño, B. G. Ng, J. C. Perkinson, C. A. Ross, Magnetic Domain Formation within Patterned NiFe/Cu/Co Ellipses, *J. Appl. Phys.* 105 07C120 (2009)
163. J. L. Sánchez Llamazares, B. Hernando, V. Prida, C. García, J. González, R. Varga and C. A. Ross, Magnetic field influence on the structural transformation in ferromagnetic shape memory alloy $Mn_{50}Ni_{40}In_{10}$ melt spun ribbons, *J. Appl. Phys.* 105 07A945 (2009)

164. Vivian P. Chuang, Caroline A. Ross, Jessica Gwyther and Ian Manners, Self-Assembled Nanoscale Ring Arrays from a Polystyrene-b-polyferrocenylsilane-b-poly(2-vinylpyridine) Triblock Terpolymer Thin Film, *Adv. Mater.* 21(37) 3789-3793 (2009)
165. Yeon Sik Jung and C. A. Ross, Well-ordered thin film nanopore arrays formed using a block copolymer template, *Small* 5(14) 1654-9 (2009)
166. D. Navas, F. Ilievski, and C. A. Ross, CoCrPt antidot arrays with perpendicular magnetic anisotropy made on anodic alumina templates, *J. Appl. Phys.* 105 113921 p1-6 (2009)
167. Lei Bi, Hyun-Suk Kim, Gerald F. Dionne, C. A. Ross, Hanjong Paik, Yun Chang Paik, Orientation control and self-assembled nano-pyramid structure of LaFeO_3 films epitaxially grown on SrTiO_3 (001) substrates, *Appl. Phys. Lett.* 95, 121908 p1-3 (2009)
168. Shih-Wei Chang, Vivian P. Chuang, Steven T. Boles, Caroline A. Ross, and Carl V. Thompson, Densely-packed arrays of ultrahigh-aspect-ratio silicon nanowire fabricated using block copolymer lithography and metal-assisted etching, *Adv. Functional Materials* 19(15) 2495-2500 (2009)
169. Chunghee Nam, M. D. Mascaro, B. G. Ng, and C. A. Ross, Electrical observation of magnetization buckling in the vortex state of a NiFe ring, *J. Phys. D* 42 222002 p1-6 (2009)
170. M. Ciria, F.J. Castaño, J.L. Diez-Ferrer, J.I. Arnaud, B.G. Ng, R.C. O'Handley, C.A. Ross, Origin of transverse magnetization in epitaxial Cu/Ni/Cu nanowire arrays, *Phys. Rev. B* 80 094417 p1-5 (2009)
171. J. H. Lee, S. N. Holmes, B. Hong, P. E. Roy, M. D. Mascaro, T. J. Hayward, D. Anderson, K. Cooper, G. A. C. Jones, M. E. Vickers, C. A. Ross, C. H. W. Barnes, Magnetic remanent states and quasi-static switching behavior of Fe split-rings for spin field-effect-transistor applications, *Appl. Phys. Lett.* 95 172505 p1-3 (2009)
172. F. Ilievski, A. Cuchillo, W. Nunes, M. Knobel, C. A. Ross, P. Vargas, Thermal behavior of hard-axis magnetization in non-interacting particles with uniaxial anisotropy, *Appl. Phys. Lett.* 95 202503 p1-3 (2009)
173. D. Perez de Lara, F. J. Castaño, B. G. Ng, R. K. Dumas, E. M. Gonzalez, Kai Liu, C. A. Ross, Ivan K. Schuller, J. L. Vicent, Rocking ratchet induced by magnetic potentials with broken reflection symmetry, *Phys. Rev. B* 80 224510 p1-7 (2009) [PRB website front page image, <http://prb.aps.org/kaleidoscope>]

174. Vivian P. Chuang, Jessica Gwyther, Rafal Mickiewicz, Ian Manners and Caroline A. Ross, Templated Self-assembly of Square Arrays from an ABC Triblock Terpolymer, *Nano Letts.* 9 (12) 4364–4369 (2009)
175. Filip Ilievski and C. A. Ross, Graphoepitaxy of block copolymers using selectively removable templates, *J. Vac. Sci. Technol. B* 28(1) 42-44 (2010)
176. Hyun-Suk Kim, Lei Bi, Han-Jong Paik, Dae-Jin Yang, Yun Chang Park, Gerald F. Dionne and Caroline A. Ross, Self-assembled Single-Phase Perovskite Nanocomposite Thin Films, *Nano Lett.* 10 (2), pp 597–602 (2010)
177. R. Sanz, D. Navas, M. Vazquez, M. Hernandez-Velez, C.A. Ross, Preparation and Magnetic properties of cylindrical NiFe films and antidot arrays, *J. Nanoscience and Nanotechnology* 10 6776-6782 (2010)
178. Y. Ren, A.O Adeyeye, C. Nam and C.A. Ross, Effects of Interlayer Coupling in Elongated $\text{Ni}_{80}\text{Fe}_{20}/\text{Au}/\text{Co}$ Nanorings, *IEEE Trans. Magn.* 46 1906-9 (2010)
179. J. L. Sánchez Llamazares, B. Hernando, C. García, and C. A. Ross, Kinetic arrest of direct and reverse martensitic transformation and exchange bias effect in $\text{Mn}_{49.5}\text{Ni}_{40.4}\text{In}_{10.1}$ melt spun ribbons, *J. Appl. Phys.* 107, 09A956 (2010)
180. Joel K. W. Yang, Yeon Sik Jung, Jae-Byum Chang, Caroline A. Ross, and Karl K. Berggren, Complex self-assembled patterns using sparse commensurate templates with locally varying motifs, *Nature Nanotechnology* 5, 256-260 (2010)
<10.1038/nnano.2010.30>
181. B. C. Choi, E. Girgis, C. A. Ross, Th. Speliotis, Y. K. Hong, G. Abo, D. Niarchos, and H. Miyagawa, Incoherent interaction of propagating spin waves with precessing magnetic moments, *Phys. Rev. B* 81 092404 (2010) p1-4
182. Lei Bi, Hyun-Suk Kim, Gerald F. Dionne and C. A. Ross, Structure, magnetic properties and magnetoelastic anisotropy in epitaxial $\text{Sr}(\text{Ti}_{1-x}\text{Co}_x)\text{O}_3$ films, *New J. Physics* 12 043044 (2010)
183. Yeon Sik Jung, J. B. Chang, Eric Verploegen, Karl K. Berggren and C. A. Ross, A path to ultra-narrow patterns using self-assembled lithography, *Nano Letts.* 10 (3), 1000–1005 (2010)
184.

Mark D. Mascaro, Chunghee Nam, and C. A. Ross, Interactions between 180 and 360 degree domain walls in magnetic multilayer stripes *Appl. Phys. Letts.* 96, 162501 (2010) p1-3

185. D.A. Navas, C. Nam, D. Velazquez, C.A. Ross, Shape and Strain-induced magnetization reorientation and magnetic anisotropy in thin film CoCrPt/Ti rings and lines, *Phys. Rev. B* 81 224439 (2010) p1-11
186. C. García , J. M. Florez, P. Vargas and C. A. Ross, Asymmetrical Giant Magnetoimpedance in NiFe/IrMn thin films, *Appl. Phys. Letts.* 96, 232501 (2010) p1-3
187. Chunghee Nam, M. D. Mascaro and C. A. Ross, Magnetostatic control of Vortex chirality in Co thin film rings, *Appl. Phys. Letts.* 96, 012505 (2010) p1-3
188. Fabrication of diverse metallic nanowire arrays based on block copolymer self-assembly, Yeon Sik Jung and C. A. Ross, *Nano Letts.* 10 3722-6 (2010)
189. Enhancing the potential of block copolymer lithography with polymer self-consistent field theory simulations, Rafal A. Mickiewicz, Yeon Sik Jung, Joel K. W. Yang, A. Alexander-Katz, Karl K. Berggren, and C. A. Ross, *Macromolecules* 43 (19), 8290–8295 (2010)
190. AC and DC Current-Induced Motion of a 360° Domain Wall, M.D. Mascaro, C.A. Ross, *Phys. Rev. B* 82, 214411 (2010)
191. Hierarchical Nanostructures by Sequential Self-assembly of Styrene-Dimethylsiloxane Block Copolymers of Different Periods, Jeong Gon Son, Adam F. Hannon, Kevin W. Gotrik, Alfredo Alexander-Katz and Caroline A. Ross, *Adv. Mater.* 23 634-39 (2010)
192. Magnetization states in coupled Ni₈₀Fe₂₀ bi-ring nanostructures, Y Ren, S Jain, A O Adeyeye and C A Ross, *New J. Phys.* 12 093003 p1-11 (2010)
193. Effect of the exchange bias coupling strength on the magnetoimpedance of IrMn/NiFe films, C. Garcia, J. M. Florez, P. Vargas, and C. A. Ross, *J. Appl. Phys.* 109, 07D735 (2011)
194. Spectral Origins of high Faraday Rotation at 1.5-mm Wavelength from Fe and Co in SrTiO₃ Films, Gerald F. Dionne, Lei Bi, H.-S. Kim and C.A. Ross, *J. Appl. Phys.* 109 07B761 (2011)
195. Highly tunable self-assembled nanostructures from a poly(2-vinylpyridine-b-dimethylsiloxane) block copolymer, Jae Won Jeong, Woon Ik Park, Mi-Jeong Kim, C. A. Ross, and Yeon Sik Jung, *Nano Letts.* 11 (10), pp 4095–4101 (2011)
196. 360-degree domain wall-mediated reversal in rhombic multilayer magnetic rings, Mark D. Mascaro, Helmut S. Körner, Chunghee Nam, Bryan G. Ng, and C. A. Ross, *Appl. Phys. Letts.* 98, 252506 (2011)

197. Magnetoelastic effects in $\text{SrTi}_{1-x}\text{M}_x\text{O}_3$ (M = Fe, Co, or Cr) epitaxial thin films, Dong Hun Kim, Lei Bi, Peng Jiang, Gerald F. Dionne, C.A. Ross, Phys. Rev. B 84 014416 (2011)
198. Enhancement of the magnetooptical performance of $\text{Sr}(\text{Ti}_{0.6-x}\text{Ga}_x\text{Fe}_{0.4})\text{O}_3$ perovskite films by Ga substitution, Dong Hun Kim, Peng Jiang, Lei Bi, Gerald F. Dionne, C.A. Ross, Appl. Phys. Lett. 98 231909 (2011)
199. Ferromagnetism in Single Crystal and Nanocomposite $\text{Sr}(\text{Ti,Fe})\text{O}_3$ Epitaxial Films, Hyun-Suk Kim, Lei Bi, Dong Hun Kim, Dae-Jin Yang, Yoon Jeong Choi, Jung Woo Lee, Jeung Ku Kang, Yun Chang Park, Gerald F. Dionne, and Caroline A. Ross, J. Mater. Chem. 21, 10364-10369 (2011)
200. Domain Wall Induced Magnetoresistance in a Superconductor/Ferromagnet Nanowire, G.X. Miao, M.D. Mascaró, Chunghee Nam, C.A. Ross, J.S. Moodera, Appl. Phys. Lett. 99, 032501 (2011)
201. Highly Ordered Square Arrays from a Templated ABC Triblock Terpolymer, Jeong Gon Son, Jessica Gwyther, Jae-Byum Chang, Karl K. Berggren, Ian Manners, and Caroline A. Ross, Nano Lett. 11 2849-55 (2011)
202. Angular dependence of ferromagnetic resonance and magnetization configuration of thin film permalloy nanoellipse arrays, M. Pardavi-Horvath, B.G. Ng, F. J. Castaño, H.S. Körner, C. Garcia, C.A. Ross, J. Appl. Phys. 110, 053921 (2011)
203. On-chip optical isolation in monolithically integrated nonreciprocal optical resonators, Lei Bi, Juejun Hu, Peng Jiang, Dong Hun Kim, Gerald F. Dionne, Lionel C. Kimerling and C. A. Ross, Nature Photonics 5, 758–762 (2011)
<https://doi.org/10.1038/nphoton.2011.270>
204. Magnetic pinning of the flux lattice in superconducting-nanomagnet hybrids, D. Perez de Lara, F. J. Castaño, B. G. Ng, H. S. Körner, R. K. Dumas, E. M. Gonzalez, Kai Liu, C. A. Ross, Ivan K. Schuller and J. L. Vicent, Appl. Phys. Lett. 99 182509 (2011)
205. Block copolymer assembly of sub-10 nm patterns with mixed morphology and period Using Electron Irradiation and Solvent Annealing, Jeong Gon Son, Jae-Byum Chang, Karl B. Berggren, and Caroline A. Ross, Nano Letters 11 (11), pp 5079–5084 (2011)
206. Magnetic Frustration in Circular Arrays of Dipoles, Seungha Yoon, Youngman Jang, Chunghee Nam, Jean Anne Currivan, B. K. Cho, and C. A. Ross, IEEE Magnetics Letters 3 4000104 1-4 (2012)
207. Comparative study of magnetization reversal process between rectangular and circular thin film rings, G. Shimon, A. O. Adeyeye, and C. A. Ross, J. Appl. Phys. 111 013909 (2012)

208. The role of deposition conditions on the structure and magnetic properties of $\text{SrTi}_x\text{Fe}_{1-x}\text{O}_3$ films, Dong Hun Kim, Nicolas M. Aimon, Lei Bi, Gerald F. Dionne, C.A. Ross, *J. Appl. Phys.* 111, 07A918 (2012)
209. Combinatorial pulsed laser deposition of Fe, Cr, Mn and Ni-substituted SrTiO_3 films on Si substrates, Dong Hun Kim, Lei Bi, Nicolas Aimon, Peng Jiang, Gerald F. Dionne, and C. A. Ross, *ACS Combinatorial Science* 14 179-190 (2012)
210. Formation and structure of 360 and 540 degree domain walls in thin magnetic stripes, Youngman Jang, S.R. Bowden, Mark Mascaro, J. Unguris, C.A. Ross, *Appl. Phys. Lett.* 100 062407 (2012)
211. Deposition of epitaxial $\text{BiFeO}_3/\text{CoFe}_2\text{O}_4$ nanocomposites on (001) SrTiO_3 by combinatorial pulsed laser deposition, Nicolas M. Aimon, Dong Hun Kim, Hong Kyoon Choi, and C. A. Ross, *Appl. Phys. Lett.* 100, 092901 (2012)
212. Low Energy Magnetic Domain Wall Logic in Short, Narrow Ferromagnetic Wires, Jean Anne Currivan, Youngman Jang, Mark D. Mascaro, Marc A. Baldo, and Caroline A. Ross, *IEEE Magnetics Letters* 3 3000104 (2012)
213. Aligned Sub-10-nm Block Copolymer Patterns Templated by Post Arrays, Jae-Byum Chang, Jeong Gon Son, Adam F. Hannon, Alfredo Alexander-Katz, Caroline A. Ross, and Karl K. Berggren, *ACS Nano* 6(3) 2071-7 (2012)
214. Current-driven domain wall motion in heterostructured ferromagnetic nanowires, Youngman Jang, Mark D. Mascaro, G. S. D. Beach, and C. A. Ross, *Appl. Phys. Lett.* 100, 112401 (2012)
215. A.Tavakkoli K. Ghariehali, K.W. Gotrik, A.F. Hannon, A. Alexander-Katz, C.A. Ross, K. K. Berggren, "Templating Three-Dimensional Self-Assembled Structures in Bilayer Block Copolymer Films" *Science* **336** 1294 (2012)
216. Rectangular Symmetry Morphologies in a Topographically Templated Block Copolymer, A. Tavakkoli K. G., A. F. Hannon, K.W. Gotrik, A. Alexander-Katz, C. A. Ross, K. K. Berggren, *Adv. Mater.* 24(31), 4249–4254, (2012)
217. First-principles insights on the magnetism of cubic $\text{SrTi}_{1-x}\text{Co}_x\text{O}_{3-\delta}$, JM Florez, SP Ong, MC Onbasli, GF Dionne, P Vargas, G Ceder, CA Ross, *Appl. Phys. Lett.* 100 252904 (2012)
218. Reversal mechanisms of coupled bi-component magnetic nanostructures, G. Shimon, A. O. Adeyeye, and C. A. Ross, *Appl. Phys. Lett.* 101, 083112 (2012)
219. Magnetization Dynamics in Vortex-Imprinted $\text{Ni}_{80}\text{Fe}_{20}/\text{Ir}_{80}\text{Mn}_{20}$ Square Elements, H. Xu, E. Girgis, J. Rudge, Th. Speliotis, C. A. Ross, H. Miyagawa, Y. K.

Hong, and B. C. Choi, *IEEE Mag. Lett.*, 3 (2012) 3500204 p1-4

220. Square Arrays of Holes and Dots Patterned from a Linear ABC Triblock Terpolymer, Hong Kyoong Choi, Jessica Gwyther, Ian Manners, and Caroline A. Ross, *ACS Nano*, **2012**, 6 (9), pp 8342–8348
221. Synthesis of silicon oxide nanowires and nanotubes with cobalt-palladium or palladium catalysts, Ria Esterina, X. M. Liu, C. A. Ross, A. O. Adeyeye, and W. K. Choi, *J. Appl. Phys.* 112, 024312 (2012)
222. Morphology Control in Block Copolymer Films using Mixed Solvent Vapors, Kevin Gotrik, Adam Hannon, Jeong Gon Son, Brent Keller, Alfredo Alexander-Katz, C.A. Ross, *ACS Nano* 6 (9), pp 8052–8059 (2012)
223. Magnetization reversal and exchange bias effects in hard/soft ferromagnetic bilayers with orthogonal anisotropies, D. Navas, J. Torrejon, F. Béron, C. Redondo, F. Batallan, B. P. Toperverg, A. Devishili, B. Sierra, F. Castaño, K.R. Pirota and C.A. Ross, *New J. Phys.* 14 (2012) 113001 (21pp)
224. High-Aspect-Ratio Perpendicular Orientation of PS-b-PDMS Thin Films under Solvent Annealing, Jeong Gon Son, Kevin W. Gotrik, and C. A. Ross, *ACS Macro Lett.*, **2012**, 1 (11), pp 1279–1284
225. Simulation of inhomogeneous magnetoelastic anisotropy in ferroelectric/ferromagnetic nanocomposites, Nicolas M. Aimon, Jiexi Liao and C. A. Ross, *Appl. Phys. Lett.* **101**, 232901 (2012)
226. The effect of A site substitution of Ce and La on the magnetic and electronic properties of $\text{Sr}(\text{Ti}_{0.6}\text{Fe}_{0.4})\text{O}_{3-\delta}$ films, Peng Jiang, Lei Bi, Xueyin Sun, Dong Hun Kim, Daming Jiang, Gaohui Wu, G. F. Dionne and C. A. Ross, *Inorg. Chem.* 51 (24), pp 13245–13253 (2012)
227. Magnetostriction in epitaxial $\text{SrTi}_{1-x}\text{Fe}_x\text{O}_{3-\delta}$ perovskite films with $x = 0.13$ and 0.35 , Dong Hun Kim, Nicolas M. Aimon, Lei Bi, J. M. Florez, Gerald F. Dionne, C.A. Ross, *J. Phys.: Cond. Mat.* **25** 026002 (2013) doi:10.1088/0953-8984/25/2/026002
228. Templated Assembly of Co-Pt Nanoparticles via Thermal and Laser-Induced Dewetting of Bilayer Metal Films, Yong-Jun Oh, Jung-Hwan Kim, Carl V. Thompson, Caroline A. Ross, *Nanoscale* 2013, 5 (1), 401 – 407
229. Vacuum annealed cerium-substituted yttrium iron garnet films on non-garnet substrates for integrated optical circuits, Taichi Goto, Yu Eto, Keiichi Kobayashi, Yoji Haga, Mitsuteru Inoue and C. A. Ross, *J. Appl. Phys.*, 113, 17, 17A939-3 (2013).

230. Self-assembled growth and magnetic properties of a BiFeO₃/MgFe₂O₄ nanocomposite prepared by pulsed laser deposition, Dong Hun Kim, Nicolas M. Aimon, Caroline A. Ross, J. Appl. Phys. **113**, 17B510 (2013)
231. Lateral Interactions of Transverse Magnetic Domain Walls, C. Nam, M. Mascaro, C.A. Ross, J. Appl. Phys. **113**, 17B903 (2013)
232. Generic model of superexchange effects in magnetoelastic oxides, G.F. Dionne, D.H. Kim, L. Bi and C.A. Ross, J. Appl. Phys. **113**, 17A927 (2013)
233. Structural and magnetic characterization of the intermartensitic phase transition in NiMnSn Heusler alloy ribbons, J. L. Sánchez Llamazares, H. Flores-Zúñiga, D. Ríos-Jara, C. F. Sánchez-Valdes, T. García-Fernández, C. A. Ross, and C. García, J. Appl. Phys. **113**, 17A948 (2013)
234. Magneto-optical properties of cerium substituted yttrium iron garnet films with reduced thermal budget for monolithic photonic integrated circuits, Taichi Goto, Mehmet C. Onbaşlı, and C. A. Ross, Optics Express, Vol. **20** Issue 27, pp.28507-28517 (2012)
235. Ordered Nanoscale Archimedean Tilings of a Templated 3-Miktoarm Star Terpolymer, Karim Aissou, Hong Kyoong Choi, Adam Nunns, Ian Manners, and Caroline A. Ross, *Nano Lett.*, **2013**, *13* (2), pp 835–839
236. Magnetic vortex stability in Ni₈₀Fe₂₀ split rings, S. N. Holmes, J. H. Lee, B. Hong, M. D. Mascaro, D. Anderson, G. A. C. Jones, C. A. Ross, and C. H. W. Barnes, J. Appl. Phys. **113**, 044508 (2013)
237. Transverse magnetization in Cu/Ni/Cu epitaxial nanorings, E. C. Corredor, D. Coffey, J. I. Arnaudas, C. A. Ross, and M. Ciria, European Physical J. B **86** p134 7pp (2013)
238. 360 degree domain walls monitored by anisotropic magnetoresistance measurements, Chunghee Nam and C. A. Ross, J. Appl. Phys. **113**, 123910 (2013)
239. Inverse Design of Topographical Templates for Directed Self-Assembly of Block Copolymers, Adam F. Hannon, Kevin W. Gotrik, Caroline A. Ross, and Alfredo Alexander-Katz, *ACS Macro Lett.*, 2013, **2** (3), pp 251–255
240. Seeded solution growth of nanoparticles into ordered three-dimensional supracrystals, Jin Young Kim, Jae-Byum Chang, Caroline A. Ross and Francesco Stellacci, RSC Advances **3**, 10628-10631 (2013)
241. Magnetic entropy change plateau in a non-collinear antiferromagnetic layered system: FeCrAs iron-pnictide structure as a magnetocaloric prototype, J. M. Florez, P. Vargas, C. Garcia, and C. A. Ross, J. Phys. Condens. Mater. **25** 226004 (2013)

242. Self-Assembled Incorporation of Modulated Block Copolymer Nanostructures in Phase-Change Memory for Switching Power Reduction, Woon Ik Park, Byoung Kuk You, Beom Ho Mun, Hyeon Kook Seo, Jeong Yong Lee, Sumio Hosaka, You Yin, C. A. Ross, Keon Jae Lee, and Yeon Sik Jung, *ACS Nano*, 2013, 7 (3), pp 2651–2658
243. Structure and composition of (Li,La)TiO₃ thin films deposited by pulsed laser deposition, Dong Hun Kim, Susumu Imashuku, Lei Wang, Yang Shao-Horn, Caroline A. Ross, *J. Cryst. Growth*, 372, Pages 9–14, (2013)
244. Synthesis and Bulk Self-Assembly of ABC Star Terpolymers with a Polyferrocenylsilane Metalloblock, Adam Nunns, Caroline A. Ross, and Ian Manners, *Macromolecules*, 2013, 46 (7), pp 2628–2635
245. Sub-10-nm Graphene Nanoribbon Array Field-Effect Transistors Fabricated by Block Copolymer Lithography, Son, J.G., Son, M., Moon, K.-J., Lee, B.H., Myoung, J.-M., Strano, M.S., Ham, M.-H., Ross, C.A., *Adv. Mater.* 25, 4723–4728, (2013)
246. Synthesis and magnetic properties of large-area ferromagnetic cylindrical nanoshell and nanocup arrays, Z. Wang, G. Shimon, X. Liu, C. V. Thompson, C. A. Ross, W. K. Choi, and A. O. Adeyeye, *J. Appl. Phys.* 113 214301 (2013)
247. Magnetic vortex dynamics in thickness-modulated Ni 80Fe 20 disks, G. Shimon, A. O. Adeyeye, and C. A. Ross, *Phys. Rev. B* 87, 214422 (2013)
248. Sacrificial-Post Templating Method for Block Copolymer Self-Assembly, A. Tavakkoli K. G., S. M. Nicaise, A. F. Hannon, K. W. Gotrik, A. Alexander-Katz, C. A. Ross, K. K. Berggren, *Small* 10(3) 493-499 (2014) DOI: 10.1002/sml.201301066, inside cover (p 418)
249. Square and Rectangular Symmetry Tiles from Bulk and Thin Film 3-Miktoarm Star Terpolymers, Karim Aissou, Adam Nunns, Ian Manners, Caroline A. Ross, *Small* 9 (23) 4077-4084 (2013)
250. Strain induced spin reorientation in epitaxial Cu/Ni/Cu rings, E. C. Corredor, D. Coffey, M. Ciria, J. I. Arnaud, J. Aisa, C. A. Ross, *Phys. Rev. B* 88 054418 (2013)
251. Structure and magnetism of epitaxial SrTi_{0.78}Cu_{0.22}O_{3-d} films with mixed-valence Cu ions, Dong Hun Kim, Gerald F. Dionne, and Caroline A. Ross, *J. Appl. Phys.* 114 113902 p1-9 (2013)
252. Compositionally Modulated Magnetic Epitaxial Spinel/Perovskite Nanocomposite Thin Films, Dong Hun Kim, Nicolas M. Aimon, Xueyin Sun, and C. A. Ross, *Adv. Fn. Mater.* 24 2334-42 (2014), DOI: 10.1002/adfm.201302844
253. Magneto-Optical Thin Films for On-Chip Monolithic Integration of Non-Reciprocal

- Photonic Devices, Lei Bi, Juejun Hu, Peng Jiang, Hyun Suk Kim, Dong Hun Kim, Mehmet Cengiz Onbasli, Gerald F. Dionne and Caroline A. Ross, *Materials* 2013, 6, 5094-5117; doi:10.3390/ma6115094
254. Thin Film Knitting Pattern Morphology from a Miktoarm Star Terpolymer, *Hong Kyoon Choi, Adam Nunns, Xue Yin Sun, Ian Manners, and Caroline A. Ross, Adv. Mater.* 26 2474-79 (2014) 10.1002/adma.201305243
255. Gold shunt pads as a chirality filter for current-driven 360° domain wall motion in a ferromagnetic wire, Jinshuo Zhang and Caroline A. Ross, *Applied Physics Letters* 103, 162411 (2013)
256. Solvothermal Annealing of Block Copolymer Thin Films, Kevin W. Gotrik and C. A. Ross, *Nano Lett.*, 2013, 13 (11), pp 5117–5122
257. Direct 3-D Nanoparticle Assemblies in Thin Films via Topographically Patterned Surfaces J. Kao, S.-J. Jeong, Z. Jiang, D. H. Lee, K. Aissou, C. A. Ross, T. P. Russell, T. Xu, *Adv. Mater.* 26 2777-81 (2014)
258. Design rules for self-assembled block copolymer patterns using tiled templates, Jae-Byum Chang, Hong Kyoon Choi, Adam F. Hannon, Alfredo Alexander-Katz, Caroline A. Ross, and Karl K. Berggren, *Nature Communications* 5 3305 p1-9 (2014)
259. Templated Self-Assembly of Functional Oxide Nanocomposites, *Nicolas M. Aimon, Hong Kyoon Choi, XueYin Sun, Dong Hun Kim, and Caroline A. Ross, Adv. Mater.* 26 3063-67 (2014)
260. Optimizing Topographical Templates for Directed Self-Assembly of Block Copolymers via Inverse Design Simulations, Adam F. Hannon, Yi Ding, Wubin Bai, Caroline A. Ross, and Alfredo Alexander-Katz, *Nano Lett.* 14 318-25 (2014) dx.doi.org/10.1021/nl404067s
261. Comparative study of the ferromagnetic resonance behavior of coupled rectangular and circular Ni80Fe20 rings, G. Shimon, A. O. Adeyeye, and C. A. Ross, *Phys. Rev. B* 89 024302 (2014)
262. Optical and magneto-optical properties of Co doped CeO2-d films in the 0.5 to 4 eV range, M. Veis, M. Kucera, M. Zahradnik, R. Antos, J. Mistrik, Lei Bi, Hyun-Suk Kim, G. F. Dionne and C. A. Ross, *J. Appl. Phys.* **115**, 17A940 (2014), <http://dx.doi.org/10.1063/1.4867961>
263. Investigation of the magnetic properties of insulating thin films using the longitudinal spin Seebeck effect, Andreas Kehlberger, Gerhard Jakob, Mehmet C. Onbasli, Dong Hun Kim, Caroline A. Ross, and Mathias Klau, *J. Appl. Phys.* **115**, 17C731 (2014) ; <http://dx.doi.org/10.1063/1.4864252>

264. Alignment and Reordering of a Block Copolymer by Solvent-Enhanced Thermal Laser Direct Write, Jonathan P. Singer, Kevin W. Gotrik, Jae-Hwang Lee, Steven E. Kooi, Caroline A. Ross, Edwin L. Thomas, *Polymer*, (55), Issue 7, 1 April 2014, Pages 1875-1882
265. C. A. Ross, K. K. Berggren, J. Y. Cheng, Y. S. Jung, J.-B. Chang, Three-Dimensional Nanofabrication by Block Copolymer Self-Assembly, *Adv. Mater.* 26 4386-96 (2014)
266. Polymethyl methacrylate/hydrogen silsesquioxane bilayer resist electron beam lithography process for etching 25nm wide magnetic wires, Jean Anne Currivan, Saima Siddiqui, Sungmin Ahn, Larysa Tryputen, and Geoffrey S. D. Beach, Marc A. Baldo, Caroline A. Ross, *J. Vac. Sci. Technol. B* 32(2) 021601 p1-5 (2014)
267. Exchange bias in (FeNi/IrMn)*n* multilayer films evaluated by static and dynamic techniques, Shankar Khanal, Andrei Diaconu, Jose M Vargas, Denny R Lenormand, Carlos Garcia, C A Ross and Leonard Spinu, *J. Phys. D: Appl. Phys.* 47 (2014) 255002 (8pp)
268. Proximity Induced High-Temperature Magnetic Order in Topological Insulator - Ferrimagnetic Insulator Heterostructure, Murong Lang, Mohammad Montazeri, Mehmet C. Onbasli, Xufeng Kou, Yabin Fan, Pramey Upadhyaya, Kaiyuan Yao, Frank Liu, Ying Jiang, Wanjun Jiang, Kin L. Wong, Guoqiang Yu, Jianshi Tang, Tianxiao Nie, Liang He, Robert N. Schwartz, Yong Wang, Caroline A. Ross, and Kang L. Wang, *Nano Lett.*, **2014**, 14 (6), pp 3459–3465
269. Integration of Self-Assembled Epitaxial BiFeO₃–CoFe₂O₄ Multiferroic Nanocomposites on Silicon Substrates, *Dong Hun Kim, Nicolas M. Aimon, Xue Yin Sun, Lior Kornblum, F. J. Walker, C. H. Ahn, and C. A. Ross, Adv. Fn. Mater.* 24, 5889–5896 (2014)
270. Pillar shape modulation in epitaxial BiFeO₃–CoFe₂O₄ vertical nanocomposite films, Dong Hun Kim, Nicolas M. Aimon, and C. A. Ross, *APL Materials* 2 081101 p1-8 (2014)
271. Hierarchical templating of a BiFeO₃–CoFe₂O₄ multiferroic nanocomposite by a triblock terpolymer film, Hong Kyoong Choi, Nicolas Aimon, Dong Hun Kim, Xue Yin Sun, Jessica Gwyther, Ian Manners, and C.A. Ross, *ACS Nano*, 8 (9), pp 9248–9254 (2014)
272. Domain wall displacement by remote spin-current injection, P. N. Skirdkov, K. A. Zvezdin, A. D. Belanovsky, J. Grolier, V. Cros, C. A. Ross and A. K. Zvezdin, *Appl. Phys. Lett.* 104 , 242401 (2014) ; <http://dx.doi.org/10.1063/1.4883740>
273. Top Coats with Solvent Annealing enable Perpendicular Orientation of Sub-10 nm Microdomains in Si-containing Block Copolymer Thin Films, Eunjin Kim, Wonjung

- Kim, Kwang Hee Lee, Caroline A. Ross, and Jeong Gon Son, *Adv. Fn. Mater.* 24, (44) pp 6981–6988 (2014) 10.1002/adfm.201401678
274. A nonreciprocal racetrack resonator based on vacuum-annealed magnetooptical cerium-substituted yttrium iron garnet, Taichi Goto, Mehmet C. Onbasli, Dong Hun Kim, Vivek Singh, M. Inoue, Lionel C. Kimerling, and C. A. Ross, *Optics Express* 22(16) 19047-54 (2014)
275. Thin Film Morphologies of Bulk-Gyroid Polystyrene-block-Polydimethylsiloxane under Solvent Vapor Annealing, Wubin Bai, Adam F. Hannon, Kevin W. Gotrik, Hong Kyoon Choi, Karim Aissou, George Lontos, Konstantinos Ntetsikas, Alfredo Alexander-Katz, Apostolos Avgeropoulos, Caroline A. Ross, *Macromolecules* 47, 6000–6008 (2014), 10.1021/ma501293n
276. 3D TEM Tomography of Templated Bilayer Films of Block Copolymers, Kevin W. Gotrik, Thomas Lam, Adam F. Hannon, Wubin Bai, Yi Ding, J. Winterbottom, A. Alexander-Katz, J. Alexander Liddle², C. A. Ross, *Adv. Fn. Mater.* 24, (48), pp. 7689–7697 (2014)
277. Domain wall structure in thin films with perpendicular anisotropy: Magnetic force microscopy and polarized neutron reflectometry study, David Navas, Carolina Redondo, Giovanni A. Badini Confalonieri, Francisco Batallan, Anton Devishvili, Óscar Iglesias-Freire, Agustina Asenjo, Caroline A. Ross and Boris P. Toperverg, *Phys. Rev. B* 90 054425 (2014)
278. Combinatorial pulsed laser deposition of magnetic and magneto-optical $\text{Sr}(\text{Ga}_x\text{Ti}_y\text{Fe}_{0.34-0.40})\text{O}_{3-\delta}$ perovskite films, Xue Yin Sun, Chen Zhang, Nicolas M. Aimon, Taichi Goto, Mehmet Onbasli, Dong Hun Kim, Hong Kyoon Choi, C.A. Ross, *ACS Comb. Sci.* 16 (11), pp 640–646 (2014)
279. Pulsed laser deposition of epitaxial Yttrium Iron Garnet films with low Gilbert damping and bulk-like magnetization, M. C. Onbasli, A. Kehlberger, D.H. Kim, G. Jakob, M. Kläui, A. V. Chumak, B. Hillebrands, and C. A. Ross, *APL Materials* 2 106102 (2014)
280. Simultaneous control of vortex polarity and chirality in thickness-modulated $[\text{CoPd}]_n/\text{Ti}/\text{Ni}_{80}\text{Fe}_{20}$ disks, G. Shimon, V. Ravichandar, A. O. Adeyeye and C. A. Ross, *Appl. Phys. Lett.* 105 , 152408 (2014), <http://dx.doi.org/10.1063/1.4897954>
281. Integration of Bulk-Quality Thin film Magneto-optical Cerium-doped Yttrium Iron Garnet on Silicon-based Photonic Substrates, Mehmet Cengiz Onbaşlı, Taichi Goto, Dong Hun Kim, Lei Bi, and C. A. Ross, *Opt. Ex.* 22(21) 25183-92 (2014)

- 282 Size-dependent magnetic properties of 100 – 500 nm diameter IrMn/NiFe disks made by a two-step deposition process, F. Liu, C.A. Ross, J. Appl. Phys. 116, 194307 p1-6 (2014); doi: 10.1063/1.4902080
283. Unidirectional propagation of magnetostatic surface spin waves at a magnetic film surface, Kin L. Wong, Lei Bi, Mingqiang Bao, Qiye Wen, Jean Pierre Chatelon, Yen-Ting Lin, C. A. Ross, Huaiwu Zhang and Kang L. Wang, Appl. Phys. Lett. 105, 232403 (2014) ; <http://dx.doi.org/10.1063/1.4903742>
284. Integration of bulk-quality thin film magnetooptical cerium-doped yttrium iron garnet on silicon nitride photonic substrates, Mehmet C. Onbasli, Taichi Goto, Xueyin Sun, Nathalie Huynh, and C. A. Ross, **Optics Express** 22(21) 25183-92 (2014) DOI:10.1364/OE.22.025183
285. Magnetic structure and anisotropy of [Co/Pd]₅/NiFe multilayers, Larysa Tryputen, Feng Guo, Frank Liu, T. N. Anh Nguyen, Majid S. Mohseni, Sunjae Chung, Yeyu Fang, Johan Akerman, R. D. McMichael, and Caroline A. Ross, Phys. Rev. B 91, 014407 p1-6 (2015)
286. Sub-10 nm Features Obtained from Directed Self-Assembly of Semicrystalline Polycarbosilane-Based Block Copolymer Thin Films, Karim Aissou, Muhammad Mumtaz, Guillaume Fleury, Giuseppe Portale, Christophe Navarro, Eric Cloutet, Cyril Brochon, Caroline A. Ross and Georges Hadzioannou, Adv. Mater. 27 (2), 261–265 (2015)
- 287 Multiferroic behavior of templated BiFeO₃-CoFe₂O₄ self-assembled nanocomposites, Nicolas M. Aimon, Dong Hun Kim, XueYin Sun, and C. A. Ross, ACS Advanced Materials and Interfaces 7 2263-8 (2015)
288. Enhancing Magnetic Ordering in Cr-doped Bi₂Se₃ using High-TC Ferromagnetic Insulator, Wenqing Liu, Liang He, Yongbing Xu, Koichi Murata, Mehmet C. Onbasli, Murong Lang, Ying Jiang, Nick. J. Maltby, Shunpu Li, Xuefeng Wang, Caroline A. Ross, Yong Wang, Peter Bencok, Gerrit van der Laan, R. Zhang, Kang L. Wang, Nano Letts. 15 (1), pp 764–769 (2015) DOI: 10.1021/nl504480g
289. Field and current driven magnetic domain wall motion in disordered A1-FePt nanowires, P. Ho, J. S. Zhang, J. A. Currivan, D. C. Bono, C. A. Ross, IEEE Magnetics Letters 6 (2015) 3000104 p1-4
290. A Three Component Self-Assembled Epitaxial Nanocomposite Thin Film, Dong Hun Kim , Xue Yin Sun, Nicolas M. Aimon, Jae Jin Kim, Michael J. Campion, Harry L. Tuller, Lior Kornblum, Fred J. Walker, Charles H. Ahn, and Caroline A. Ross, Adv. Funct. Mater. 2015, 25, 3091–3100, DOI: 10.1002/adfm.201500332
291. SrGa_{0.7}Co_{0.3}O_{3-δ} perovskite-cobalt oxide-metal nanocomposite films: magnetic and optical properties, Xue Yin Sun, Martin Veis, Jaroslav Kousal, Eva Jesenska,

Chen Zhang, Nicolas M. Aimon, Taichi Goto, Mehmet C. Onbasli, Dong Hun Kim, Hong Kyoon Choi, C.A. Ross, *Nanotechnology* 26 (2015) 115701 (10pp)

292. Magneto-optical studies of SrGa_{0.7}Co_{0.3}O_{3-δ} perovskite thin films with embedded cobalt nanoparticles, M. Veis, M. Zahradnik, L. Ohnoutek, L. Beran, M. Kucera, Xue Yin Sun, Chen Zhang, Nicolas M. Aimon, Taichi Goto, Mehmet Onbasli, Dong Hun Kim, Hong Kyoon Choi, and C. A. Ross, *J. Appl. Phys.* 117 , 17A746 (2015) ; <http://dx.doi.org/10.1063/1.4918783>
293. Thermo-Solvent Annealing of Block Copolymer Thin Films, Saman Safari Dinachali, Wubin Bai, Kun-Hua Tu, Hong Kyoon Choi, Jinshuo Zhang, Melissa E Kreider, Caroline A. Ross, *Macro Lett.* 4 (5), pp 500–504 (2015). DOI: 10.1021/*acsmacrolett*.5b00108
294. J. S. Zhang, J. A. Currivan, L. Tryputen, P. Ho, M. Baldo, and C. A. Ross, Effects of edge taper on domain wall structure and current-driven Walker Breakdown in a ferromagnetic thin film wire, *IEEE Magn. Lett.* 6, 1-4 (2015)
295. Templates as shadow masks to tune the ferromagnetic anisotropy in CoCrPt, D. Navas, L. Bi, A. Adeyeye and C.A. Ross, *Adv. Mater. Interfaces* (2015) 2, 1400551 p1-8 10.1002/*admi*.201400551
296. Geometrically frustrated Fe₂P-like systems: beyond the Fe-trimer approximation, J. M. Florez, O. A. Negrete, P. Vargas and C. A. Ross, *J. Phys.: Condens. Matter* 27 (2015) 286004 (10pp) doi:10.1088/0953-8984/27/28/286004
297. Thickness and power dependence of the spin-pumping effect in Y₃Fe₅O₁₂/Pt heterostructures measured by the inverse spin Hall effect, M. B. Jungfleisch, A. V. Chumak, A. Kehlberger, V. Lauer, M. C. Onbasli, D. H. Kim, C. A. Ross, M. Klaui, and B. Hillebrands, *Phys. Rev. B* 91 134407 2015 p1-10
298. Enhanced Magneto-optic Kerr Effect and Magnetic Properties of CeY₂Fe₅O₁₂ Epitaxial Thin Films, Andreas Kehlberger, Kornel Richter, Mehmet C. Onbasli, Gerhard Jakob, Dong Hun Kim, Taichi Goto, Caroline A. Ross, Gerhard Götz, Günter Reiss, Timo Kuschel, and Mathias Kläui, *Phys. Rev. Applied*, 4, 014008 (2015)
299. Oxygen partial pressure dependence of magnetic, optical and magneto-optical properties of epitaxial cobalt-substituted SrTiO₃ films, Mehmet C. Onbaşlı, Taichi Goto, Astera Tang, Annia Pan, Enes Battal, Ali K. Okay, Gerald F. Dionne, C. A. Ross, *Opt. Express* 23(10) p13399-409 (2015), DOI:10.1364/OE.23.013399
300. Simulation methods for solvent vapor annealing of block copolymer thin films, Hannon, A. F.; Bai, W.; Alexander-Katz, A., C.A. Ross, *Soft Matter* 11 (19) 3794-3805 (2015) 10.1039/C5SM00324E
301. Universal pattern transfer methods for metal nanostructures by block copolymer

- lithography, Kun-Hua Tu, Wubin Bai, George Lontos, Konstantinos Ntetsikas, Apostolos Avgeropoulos and Caroline A Ross, *Nanotechnology* 26 375301 (12pp) (2015), doi:10.1088/0957-4484/26/37/375301
302. Spin wave differential circuit for realization of thermally stable magnonic sensors, Taichi Goto, Naoki Kanazawa, Altansargai Buyandalai, Hiroyuki Takagi, Yuichi Nakamura, Shingo Okajima, Takashi Hasegawa, Alexander B. Granovsky, Koji Sekiguchi, Caroline A. Ross, and Mitsuteru Inoue, *Appl. Phys. Lett.*, **106**, 132412 (2015); doi: 10.1063/1.4916989
303. Conductive Atomic Force Microscopy of Small Magnetic Tunnel Junctions with Interface Anisotropy, Stephan K. Piotrowski, Mukund Bapna, Hamid Almasi, Wei-Gang Wang, Larysa Tryputen, Caroline A. Ross, Mingen Li, Chia-Ling Chien, and Sara A. Majetich, *IEEE Trans. Magn.* 51(11) 4400504 (2015) 10.1109/TMAG.2015.2434798
304. Single-Step Deposition of Cerium-Substituted Yttrium Iron Garnet for Monolithic On-Chip Optical Isolation, Xue Yin Sun, Qingyang Du, Taichi Goto, Mehmet C. Onbasli, Dong Hun Kim, Nicolas M. Aimon, Juejun Hu, and Caroline A. Ross, *ACS Photonics* 2 (7), 856–863 (2015) DOI: 10.1021/acsphotonics.5b00026
305. Length scale of the spin Seebeck effect, Andreas Kehlberger, Ulrike Ritzmann, Denise Hinzke, Er-Jia Guo, Gerhard Jakob, Mehmet C. Onbasli, Dong Hun Kim, Caroline A. Ross, Matthias B. Jungfleisch, Burkard Hillebrands, Ulrich Nowak, and Mathias Klau, *Phys Rev. Lett.* 115 096602 (2015) p1-5
306. Magneto-optical investigation of spin-orbit torques in metallic and insulating magnetic structures, Mohammad Montazeri, Pramey Upadhyaya, Mehmet C. Onbasli, Guoqiang Yu, Kin L. Wong, Murong Lang, Yabin Fan, Xiang Li, Pedram Khalili Amiri, Robert N. Schwartz, Caroline A. Ross, Kang L. Wang, *Nature Communications* 6 8958 (2015) p1-, DOI: 10.1038/ncomms9958
307. Combining Graphoepitaxy and Electric Fields towards Uniaxial Alignment of Solvent annealed Poly(styrene)-b-poly(dimethylsiloxane) block copolymers, Christine C. Kathrein, Wubin Bai, Jean Anne Currivan Incorvia, George Lontos, Konstantinos Ntetsikas, Apostolos Avgeropoulos, Alexander Böker, Larisa Tsarkova, and Caroline A. Ross, *Chem. Mater.* 27 (19), pp 6890–6898 (2015)
308. Edge-modulated perpendicular magnetic anisotropy in $[\text{Co/Pd}]_n$ and $\text{L}_{10}\text{-FePt}$ thin film wires, J. S. Zhang, P. Ho, J. A. Currivan, Saima A. Afroz, and C. A. Ross, *Appl. Phys. Lett.* 107, 182408 (2015), 10.1063/1.4935104
309. Perpendicular Block Copolymer Microdomains in High Aspect Ratio Templates, Wubin Bai, Karim Gadelrab, Alfredo Alexander-Katz, and Caroline A. Ross, *Nano Lett.* 15 (10), pp 6901–6908. (2015) DOI: 10.1021/acs.nanolett.5b02815

310. Solid-State Dewetting of Magnetic Binary Alloy Thin Films, Ria Esterina, X.M. Liu, A.O. Adeyeye, C.A. Ross, W.K. Choi, J. Appl. Phys. 118, 144902 (2015); <http://dx.doi.org/10.1063/1.4932565>
311. Self-aligned Ni/NiFe/Fe magnetic lateral heterostructures, G. Shimon, C. A. Ross, and A. O. Adeyeye, J. Appl. Phys. 118, 153901 (2015); doi: 10.1063/1.4933096
312. Magnetization Reversal in Ferromagnetic Films Patterned with Antiferromagnetic Gratings of Various Sizes, F. Liu and C. A. Ross, Phys. Rev. Appl. 4, 054005 (2015) p1-7, 10.1103/PhysRevApplied.4.054005
313. In Situ Characterization of the Self-assembly of a Polystyrene-Polydimethylsiloxane Block Copolymer during Solvent Vapor Annealing, W. Bai, K. G. Yager, C. A. Ross, Macromolecules 48 (23), pp 8574–8584 (2015), 10.1021/acs.macromol.5b02174
314. Logic circuit prototypes for three-terminal magnetic tunnel junctions with mobile domain walls, J. A. Currivan-Incorvia, S. Siddiqui, S. Dutta, E. R. Evarts, J. Zhang, D. Bono, C. A. Ross, and M. A. Baldo, Nat. Commun. 7 10275 pp1-7 (2016) <DOI: 10.1038/ncomms10275>
315. Monte Carlo modeling of mixed-anisotropy [Co/Ni]₂/NiFe multilayers, R. A. Escobar, L. Tryputen, S. Castillo-Sepúlveda, D. Altbir, S. Chung, T. N. Anh Nguyen, Majid S. Mohseni, J. Åkerman and C. A. Ross, IEEE Magnetics Letts. 7 4101205 pp1-5 (2016)
316. Micromagnetic Modeling of Domain Wall Motion in Sub-100-nm-Wide Wires with Individual and Periodic Edge Defects, S. Dutta, S. A. Siddiqui, J. A. Currivan-Incorvia, C. A. Ross, and M. A. Baldo, AIP Advances 5, 127206 (2015), p1-10, <http://dx.doi.org/10.1063/1.4937557>
317. Crystallographic analysis of the solid-state dewetting of polycrystalline gold film using automated indexing in a transmission electron microscope, S. A. Jang, H. J. Lee, C. V. Thompson, C. A. Ross, and Y. J. Oh, APL Mater. 3, 126103 (2015); doi: 10.1063/1.4937432
318. Functional nanostructured materials based on self-assembly of block copolymers, W. Bai and C.A. Ross, MRS Bull. 41(2) 100-107 (2016)
319. Multilayer Block-Copolymer Meshes by Orthogonal Self-Assembly, Amir Tavakkoli K.G., Samuel M. Nicaise, Karim R. Gadelrab, Alfredo Alexander-Katz, Caroline A. Ross, Karl K. Berggren, Nat. Commun. 7 10518 pp1-10 (2016) <DOI: 10.1038/ncomms10518>
320. Evidence for Ferromagnetic Coupling at the Doped Topological Insulator/Ferromagnetic Insulator Interface, Wenqing Liu, Liang He, Yan Zhou, Koichi

- Murata, Mehmet C. Onbasli, Caroline A. Ross, Yongbing Xu, Rong Zhang, Kang. L. Wang, AIP Advances 6, 055813 (2016); doi: 10.1063/1.4943157
321. Magnetic phase formation in self-assembled epitaxial BiFeO₃-MgO and BiFeO₃-MgAl₂O₄ nanocomposite films grown by combinatorial pulsed laser deposition, Dong Hun Kim, XueYin Sun, Tae Cheol Kim, Yun Jae Eun, Taeho Lee, Sung Gyun Jeong and Caroline A. Ross, ACS Adv. Mat. Inter. 8 (4), pp 2673–2679 (2016) DOI: 10.1021/acsami.5b10676
 322. Oersted field and spin current effects on magnetic domains in [Co/Pd]₁₅ nanowires, Pin Ho, Jinshuo Zhang, David C. Bono, Jingsheng Chen, Caroline A. Ross, IEEE Trans. Magn. 52 2100506 (2016) pp1-6 10.1109/TMAG.2016.2526972
 323. Two-Dimensional Nanoparticle Supracrystals: A Model System for Two-Dimensional Melting, Jin Young Kim, S. Joon Kwon, Jae-Byum Chang, Caroline A. Ross, T. Alan Hatton, and Francesco Stellacci, Nano Lett. 16 (2), pp 1352–1358 (2016) DOI: 10.1021/acs.nanolett.5b04763
 324. Domain Configurations in Co/Pd and L10-FePt Nanowire Arrays with Perpendicular Magnetic Anisotropy, Pin Ho, Kun-Hua Tu, Jinshuo Zhang, Congli Sun, Jingsheng Chen, George Lontos, Konstantinos Ntetsikas, Apostolos Avgeropoulos, Paul M. Voyles, Caroline A. Ross, Nanoscale 8, 5358-5367 (2016)
 325. Electric Field induced Morphological Transitions in Metalorganic 3-Miktoarm Star Terpolymer Films, Christine C. Kathrein, Wubin Bai, Adam Nunns, Jessica Gwyther, Ian Manners, Alexander Boker, Larisa Tsarkova, and Caroline A. Ross Soft Matter 12 4866-4874 (2016) DOI: 10.1039/c6sm00451b
 326. 360° domain walls: stability, magnetic field and electric current effects, J. S. Zhang, Saima A. Siddiqui, P. Ho, J. A. Currivan-Incorvia, L. Tryputen, E. Lage, D. C. Bono, M. Baldo, and C. A. Ross, New J Phys. 18 053028 (2016) pp1-9 doi:10.1088/1367-2630/18/5/053028
 327. Plexciton Dirac points and topological modes, Joel Yuen-Zhou, Semion K. Saikin, Tony Zhu, Mehmet C. Onbasli, Caroline A. Ross, Vladimir Bulovic, and Marc Baldo, Nature Communications 7 11783 pp1-7 (2016)
 328. Patterning of sub-50 nm Perpendicular CoFeB/MgO-based Magnetic Tunnel Junctions, Larysa Tryputen, Kun-Hua Tu, Stephan K. Piotrowski, Mukund Bapna, Sara A. Majetich, Congli Sun, Paul Voyles, Hamid Almasi, Weigang Wang, Patricio Vargas, Jason S. Tresback, Caroline A. Ross, Nanotechnol. 27 185302 (2016) (7pp) doi:10.1088/0957-4484/27/18/185302
 329. Optical and magneto-optical behavior of Cerium Yttrium Iron Garnet thin films at wavelengths of 200 - 1770 nm, Mehmet C. Onbasli, Lukáš Beran, Martin Zahradník, Miroslav Kučera, Roman Antoš, Jan Mistrík, Gerald F. Dionne, Martin Veis and

Caroline A. Ross, Scientific Rep. 6 23640 pp1-10 (2016) DOI: 10.1038/srep23640

330. Magnetophotonic crystal with cerium substituted yttrium iron garnet and enhanced Faraday rotation angle, Takuya Yoshimoto, Taichi Goto, Ryosuke Isogai, Yuichi Nakamura, Hiroyuki Takagi, C. A. Ross, and M. Inoue, Optics Express 24(8) 8746 (2016) DOI:10.1364/OE.24.008746
331. Depinning of Domain Walls by Magnetic Fields and Current Pulses in Tapered Nanowires With Anti-Notches, Enno Lage, Necdet Onur Urs, Saima Siddiqui, Marc Baldo, Jeffrey McCord, and Caroline A. Ross, Mag Lett. 7 3502405 (2016) pp1-5
332. Tailored Anisotropy and Magnetostatic Interactions in Self-Assembled $\text{Co}_x\text{Ni}_{1-x}\text{Fe}_2\text{O}_4/\text{BiFeO}_3$ nanocomposites, Shuchi Ojha, Nicolas M. Aimon and Caroline A. Ross, ACS Nano 10, 7657–7664 (2016) DOI: 10.1021/acsnano.6b02985
333. Demonstration of a robust magnonic spin wave interferometer, Naoki Kanazawa, Taichi Goto, Koji Sekiguchi, Alexander B. Granovsky, Caroline A. Ross, Hiroyuki Takagi, Yuichi Nakamura, Mitsuteru Inoue, Sci. Rep. 6 30268 p1-8 (2016) DOI: 10.1038/srep30268
334. Structure and magnetic properties of pulsed laser deposited $\text{SrFe}_{12}\text{O}_{19}$ thin films on SrTiO_3 (100) and (111) substrates, Dong Hun Kim, Seung Ho Han, Moon, Lee, and Caroline A. Ross, J. Alloy Compounds 692 545-551 (2017) doi: 10.1016/j.jallcom.2016.09.046
335. A variable variance Preisach model for multilayers with perpendicular magnetic anisotropy, A. F. Franco, C. Gonzalez, R. Morales, C. A. Ross, R. Dumas, J. Akerman, and C. Garcia, Phys. Rev. B 94 064431 (2016) pp1-11
336. Current-Induced Switching in a Magnetic Insulator, Can Onur Avci, Andy Quindeau, Chi-Feng Pai, Maxwell Mann, Lucas Caretta, Astera S. Tang, Mehmet C. Onbasli, Caroline A. Ross, and Geoffrey S. D. Beach, Nature Materials 16 309-314 (2017) <https://www.nature.com/articles/nmat4812>
337. Spinel/Perovskite Cobaltite Nanocomposites Synthesized by Combinatorial Pulsed Laser Deposition, Yan Chen, Shuchi Ojha, Nikolai Tsvetkov, Dong Hun Kim, Bilge Yildiz, C.A. Ross, CrystEngCom 18 7745-7752 (2016)
338. In Situ GISAXS Study of a Si-containing block copolymer under solvent vapor annealing: effects of molecular weight and solvent vapor composition, W. Bai, K. G. Yager, C. A. Ross, Polymer 101 176-183 (2016)
339. UV-Solvent Annealing of PDMS-majority and PS-majority PS-*b*-PDMS block copolymer films, Keehong Lee, Melissa Kreider, Wubin Bai, Li-Chen Cheng, Saman Safari Dinachali, Kun-Hua Tu, Tao Huang, Konstantinos Ntetsikas, George Lontos,

- Apostolos Avgeropoulos, Caroline A. Ross, *Nanotechnology* 27 465301 (11pp) (2016)
340. Graft-through Synthesis and Assembly of Janus Bottlebrush Polymers from A-Branch-B Diblock Macromonomers, Ken Kawamoto, Mingjiang Zhong, Karim R. Gadelrab, Li-Chen Cheng, Caroline A. Ross, Alfredo Alexander-Katz, and Jeremiah A. Johnson, *J. Amer. Chem. Soc.* 138 (36), 11501–11504 (2016) DOI: 10.1021/jacs.6b07670
 341. Domain wall configurations and interactions in perpendicular magnetic anisotropy nanowires, Jinshuo Zhang and Caroline A. Ross, *Mag. Lett.* 7 3504205 (5 pages) (2016)
 342. $\text{Tm}_3\text{Fe}_5\text{O}_{12}/\text{Pt}$ Heterostructures with Perpendicular Magnetic Anisotropy for Spintronic Applications, Andy Quindeau, Can O. Avci, Wenqing Liu, Congli Sun, Maxwell Mann, Astera T. Tang, Mehmet C. Onbasli, David Bono, Paul M. Voyles, Yongbing Xu, Jason Robinson, Geoffrey S. D. Beach and Caroline A. Ross, *Advanced Electronic Materials* 3 1600376 (2017) 8 pages DOI: 10.1002/aelm.201600376
 343. Large-area zinc oxide nanorod arrays templated by nanoimprint lithography: control of morphologies and optical properties, Chen Zhang, Xiaohu Huang, Hongfei Liu, Soo Jin Chua and Caroline A Ross, *Nanotechnology* 27 485604 (8pp) (2016)
 344. Head to head domain wall structures in tapered magnetic strips, E. Lage, J. Zhang and C.A. Ross, *IEEE Trans Magn.* 53(2) 7100104 1-4 (2017)
 345. Magnetism and Faraday rotation in polycrystalline and single-crystal iron-substituted strontium titanate films deposited at different pressures, Taichi Goto, Dong Hun Kim, Xueyin Sun, Nicolas M Aimon, Mehmet C. Onbasli, Juan Manuel Florez Uribe, Karl Ackland, Plamen Stamenov, Mitsuteru Inoue, Michael Coey, Harry L. Tuller, Gerald F. Dionne, C.A. Ross, *Phys. Rev. Applied*, 7 024006 14pp (2017)
 346. Angular dependent FORC and FMR of exchange-biased NiFe multilayer films, R. A. Gallardo, S. Khanal, J. M. Vargas, L. Spinu, C. A. Ross and C. Garcia, *J Phys D*, 50 075002 10pp (2017)
 347. Interface electronic structure at the topological insulator - ferrimagnetic insulator junction, Y. Kubota, K. Murata, J. Miyawaki, K. Ozawa, M. C. Onbasli, T. Shirasawa, B. Feng, Sh. Yamamoto, R.-Y. Liu, S. Yamamoto, S. K. Mahatha, P. Sheverdyayeva, P. Moras, C. A. Ross, S. Suga, Y. Harada, K. L. Wang, and I. Matsuda, *J. Phys.: Condens. Matter* 29 055002 (6pp) (2017) [Selected as Annual Journal Highlight]
 348. Morphology, directed self-assembly and pattern transfer from a high molecular weight polystyrene-block-poly(dimethylsiloxane) block copolymer film, Li-Chen

- Cheng, Wubin Bai, Eduardo Fernandez Martin, Kun-Hua Tu, Konstantinos Ntetsikas, George Liontos, Apostolos Avgeropoulos, and C.A. Ross, *Nanotechnol.* 28 145301 11pp (2017) <https://doi.org/10.1088/1361-6528/aa61c90957-4484/>
349. Nanoscale Spirals by Directed Self-Assembly, Hong Kyoon Choi, Jae-Byum Chang, Adam F. Hannon, Joel K. W. Yang, Karl K. Berggren, Alfredo Alexander-Katz and Caroline Ross, *Nano Futures* 1 015001 9pp (2017)
350. Spin transport in as-grown and annealed Thulium iron garnet/Pt bilayers with perpendicular magnetic anisotropy, Can Onur Avci, Andy Quindeau, Maxwell Mann, Chi-Feng Pai, Caroline A. Ross, Geoffrey S. D. Beach, *Phys Rev. B* **95**, 115428 (2017) 9pp DOI: 10.1103/PhysRevB.95.115428
351. Temporal evolution of auto-oscillations in a YIG/Pt microdisc driven by pulsed spin Hall effect-induced spin-transfer torque, Viktor Lauer, Michael Schneider, Thomas Meyer, Thomas Brächer, Philipp Pirro, Björn Heinz, Frank Heussner, Bert Lägél, Mehmet C. Onbasli, Caroline A. Ross, Burkard Hillebrands, and Andrii V. Chumak, *IEEE Magnetics Letters* 8 3104304 4pp (2017) 10.1109/LMAG.2017.2661243
352. Geometry dependence of the magnetization reversal process in bridged dots, R.A. Escobar, E. Lage, J. d'Albuquerque e Castro, D. Altbir, C.A. Ross, *J Magn. Magn. Mater.* 432 304-308 (2017)
353. Temperature-dependent Faraday Rotation and Magnetization Reorientation in Cerium-substituted Yttrium Iron Garnet Thin Films, Enno Lage, Lukas Beran, Andy Udo Quindeau, Lukas Ohnouteck, M. Kucera, R. Antos, Gerald F. Dionne, Martin Veis and Caroline A. Ross, *APL Materials* **5**, 036104 7pp (2017) <http://dx.doi.org/10.1063/1.4976817>
354. Self-assembled growth of $\text{Sr}(\text{Ti,Fe})\text{O}_3$ - CoFe_2O_4 magnetic nanocomposite thin films, Dong Hun Kim, Tae Cheol Kim, Seung Han Lee, Seung Ho Han, Kyu-Sung Han and C. A. Ross, *J Appl. Phys.* 121 163903 (2017) <http://dx.doi.org/10.1063/1.4982162>
355. Magnetization reversal in ferromagnetic wires patterned with antiferromagnetic gratings, S. R. Sani, F. Liu, and C. A. Ross, *Appl. Phys. Lett.* 110, 162403 (2017); doi: 10.1063/1.4981389
356. Enhanced magneto-optical effect in $\text{Ce}_{1.5}\text{Y}_{1.5}\text{Fe}_5\text{O}_{12}$ thin films deposited on silicon by pulsed laser deposition, Y. Zhang, C. T. Wang, X. Liang, B. Peng, H. P. Lu, P. H. Zhou, L. Zhang, J. X. Xie, L. J. Deng, M. Zahradnik, L. Beran, M. Kucera, M. Veis, C. A. Ross and L. Bi, *J Alloy Compounds* 703 591-599 (2017) <http://dx.doi.org/10.1016/j.jallcom.2017.01.315>

357. Interfacial Energy-Controlled Top Coats for Gyroid-Cylinder Phase Transitions of PS-*b*-PDMS Block Copolymer Thin Films, In Hyu Ryu, YongJoo Kim, Yeon Sik Jung, Jong Seong Lim, Caroline A. Ross, and Jeong Gon Son, ACS Appl. Mater. Interfaces (2017), 9, 17427–17434, DOI: 10.1021/acsami.7b02910
358. Control and Local Measurement of the Spin Chemical Potential in a Magnetic Insulator, Chunhui Du, Toeno Van der Sar, Tony X. Zhou, Pramey Upadhyaya, Francesco Casola, Huiliang Zhang, Mehmet C. Onbasli, Caroline A. Ross, Ronald L. Walsworth, Yaroslav Tserkovnyak, Amir Yacoby, Science (2017) Vol. 357, Issue 6347, pp. 195-198 DOI: [10.1126/science.aak9611](https://doi.org/10.1126/science.aak9611)
359. Thermally stable amorphous tantalum yttrium oxide with low IR absorption for magnetophotonic devices, Takuya Yoshimoto, Taichi Goto, Hiroyuki Takagi, Yuchi Nakamura, Hironaga Uchida, Caroline A. Ross & Mitsuteru Inoue, Sci. Rep. 7: 13805 pp1-9 2017 DOI:10.1038/s41598-017-14184-4
360. The Spatial Resolution Limit for an Individual Domain Wall in Magnetic Nanowires, Sumit Dutta, Saima A. Siddiqui, Jean Anne Currivan-Incorvia, Caroline A. Ross and Marc A. Baldo, *Nano Lett.*, (2017), 17 (9), 5869–5874
361. Fast switching and signature of efficient domain wall motion driven by spin-orbit torques in a perpendicular anisotropy magnetic insulator/Pt bilayer, Can Onur Avci, Ethan Rosenberg, Manuel Baumgartner, Lukas Beran, Andy Quindeau, Pietro Gambardella, Caroline A. Ross, and Geoffrey S. D. Beach Appl. Phys. Lett. 111, 072406 (2017); <https://doi.org/10.1063/1.4994050>
362. The role of Snell's law for a magnonic majority gate, Naoki Kanazawa, Taichi Goto, Koji Sekiguchi, Alexander B. Granovsky, Caroline A. Ross, Hiroyuki Takagi, Yuichi Nakamura, Hironaga Uchida, Mitsuteru Inoue, Sci. Rep. 7 7898 (2017) doi:10.1038/s41598-017-08114-7
363. Magnetic and photoluminescent coupling in SrTi_{0.87}Fe_{0.13}O₃/ZnO vertical nanocomposite films, Chen Zhang, Dong Hun Kim, Xiaohu Huang, Xue Yin Sun, Nicolas M. Aimon, Soo Jin Chua and Caroline A. Ross, ACS Applied Materials and Interfaces, (2017), 9 (37), pp 32359–32368, DOI: 10.1021/acsami.7b08741
364. Dependence of the Thermal Conductivity of BiFeO₃ Thin Films on Polarization and Structure, Shuai Ning, Samuel C. Huberman, Chen Zhang, Zhengjun Zhang, Gang Chen and Caroline A. Ross, Phys. Rev. Appl. 8, 054049 8pp (2017) 10.1103/PhysRevApplied.8.054049
365. Microscopic reversal magnetization mechanisms in CoCrPt thin films with perpendicular magnetic anisotropy: Fractal structure versus labyrinth stripe domains, D. Navas, N. Soriano, F. Béron, C. T. Sousa, K. R. Pirota, J. Torrejon, C. Redondo, R. Morales and C. A. Ross, Phys. Rev. B (Rapid Comm.) **96**, 180403(R) (2017) 5pp

366. Inverting the design path for self-assembled block copolymers, Karim R. Gadelrab, Adam F. Hannon, Caroline A. Ross and Alfredo Alexander-Katz, RSC Molecular Systems Design and Engineering 2 539-548 (2017) DOI: 10.1039/c7me00062f
367. Spin wave excitation in sub-micrometer thick Y₃Fe₅O₁₂ films fabricated by pulsed laser deposition on garnet and silicon substrates: A comparative study, Michael Balinskiy, Shuchi Ojha, Howard Chiang, Mojtaba Ranjbar, Caroline A. Ross, and Alexander Khitun, Journal of Applied Physics 122, 123904 (2017); doi: 10.1063/1.4990565
368. Photoluminescent Nano-Patterned Monolayer MoS₂ by Block Copolymer Lithography, Grace G. D. Han, Kun-Hua Tu, Farnaz Niroui, Wenshuo Xu, Vladimir Bulović, Caroline A. Ross, Jamie H. Warner, Jeffrey C. Grossman, Adv. Funct. Mater. (2017), 27(45) 1703688 12pp
369. Effect of magnetostatic interactions on stochastic domain wall motion in sub-100-nm-wide nanowires, Saima A. Siddiqui, Sumit Dutta, Jean A. Currivan-Incorvia, Caroline A. Ross and Marc A. Baldo, *IEEE Mag. Lett.* 9 4101405 5pp (2018)
370. Rapid shear alignment of sub-10-nm cylinder-forming block copolymer films based on coefficient of thermal expansion mismatch, Samuel M. Nicaise, Karim R. Gadelrab, Amir Tavakkoli K. G., Caroline A. Ross, Alfredo Alexander-Katz, Karl K. Berggren, Nano Futures 1 035006 11pp (2018)
371. Thickness-dependent double epitaxial growth in strained magnetic SrTi_{0.7}Co_{0.3}O_{3-δ} films, Astera Tang, Mehmet C. Onbasli, Xueyin Sun, Caroline A. Ross, ACS Appl. Mater. Interfaces 10(8) 7469-7475 (2018) doi: [10.1021/acsami.7b18808](https://doi.org/10.1021/acsami.7b18808)
372. Magnetization reversal in radially distributed nanowire arrays, C. Garcia, W. O. Rosa, J. Garcia, V. M. Prida, B. Hernando, J. A. Lopez, P. Vargas and C. A. Ross, J. Phys. Chem. C, (2018), 122 (9), pp 5124–5130 DOI: 10.1021/acs.jpcc.7b10799
373. Magnetism and spin transport in rare-earth-rich epitaxial terbium and europium iron garnet films, Ethan R. Rosenberg, Lukáš Beran, Can O. Avci, Cyrus Zeledon, Bingqian Song, Claudio Gonzales, Johannes Mendil, Pietro Gambardella, Martin Veis, Carlos Garcia, Geoffrey S.D. Beach, Caroline A. Ross, Phys. Rev. Mater. 2 094405 (2018)
374. Directed self-assembly of a two-state block copolymer system, Hyung Wan Do, Hong Kyoon Choi, Karim R. Gadelrab, Jae-Byum Chang, Alfredo Alexander-Katz, Caroline A. Ross and Karl K. Berggren, Nano Convergence (2018) 5:25 p1-9 <https://doi.org/10.1186/s40580-018-0156-z>

375. Templated Self-assembly of a PS-branch-PDMS Bottlebrush Copolymer, Li-Chen Cheng, Karim Raafat Gadelrab, Ken Kawamoto, Kevin G. Yager, Jeremiah A. Johnson, Alfredo Alexander-Katz, and Caroline A Ross, *Nano Lett.* (2018) 18(7):4360-4369 DOI: 10.1021/acs.nanolett.8b01389
376. Double-Layer Morphologies from a Silicon-Containing ABA Triblock Copolymer, Sangho Lee, Li-Chen Cheng, Karim R. Gadelrab, Konstantinos Ntetsikas, Dimitrios Moschovas, Kevin G. Yager, Apostolos Avgeropoulos, Alfredo Alexander-Katz, and Caroline A. Ross, *ACS Nano* (2018), 12, 6193–6202, p1-10, DOI: 10.1021/acsnano.8b02851
377. Self-assembled multiferroic epitaxial BiFeO₃–CoFe₂O₄ nanocomposite thin films grown by RF magnetron sputtering, Tae Cheol Kim, Shuchi Ojha, Guo Tian, Seung Han Lee, Hyun Kyu Jung, Jun Woo Choi, Lior Kornblum, Frederick J. Walker, Charles H. Ahn, Caroline A. Ross and Dong Hun Kim, *J. Mater. Chem. C*, (2018), 6, 5552 p1-10; DOI: 10.1039/c8tc01192c
378. Integration of sputter-deposited multiferroic CoFe₂O₄–BiFeO₃ nanocomposites on conductive La_{0.7}Sr_{0.3}MnO₃ electrodes, Seung Han Lee, Guo Tian, Tae Cheol Kim, Hyun Kyu Jung, Jun Woo Choi, Frederick J Walker, Charles H Ahn, Caroline A Ross and Dong Hun Kim, *Nanotechnology* 30(10) (2019) 105601 (13pp) <https://doi.org/10.1088/1361-6528/aaf7cd>
379. Tailoring the Asymmetric Magnetoimpedance Response in Exchange-Biased Ni-Fe Multilayers, U. Kilic, C. A. Ross, and C. Garcia, *Physical Review Applied* 10, 034043 (2018)
380. Magnetic reversal and thermal stability of CoFeB perpendicular magnetic tunnel junction arrays patterned by block copolymer lithography, Kun-Hua Tu, Eduardo Fernandez, Hamid Almasi, Weigang Wang, David Navas Otero, Konstantinos Ntetsikas, Dimitrios Moschovas, Apostolos Avgeropoulos and Caroline A Ross, *Nanotechnology* 29 (2018) 275302 (12pp), <https://doi.org/10.1088/1361-6528/aabce8>
381. Thermal stability of L10-FePt nanodots patterned by self-assembled block copolymer lithography, Eduardo Fernandez, Kun-Hua Tu, Pin Ho and Caroline A Ross, *Nanotechnology* 29 (2018) 465301 (9pp) <https://doi.org/10.1088/1361-6528/aade2f>
382. Domain wall structure and interactions in 50 nm wide Cobalt nanowires, Kun-Hua Tu, Shuchi Ojha and Caroline A Ross, *J. Phys. D: Appl. Phys.* 51 215002 (2018) (p1-8)
383. Thermal conductivity in self-assembled CoFe₂O₄/BiFeO₃ vertical nanocomposite films, Chen Zhang, Samuel C. Huberman, Shuai Ning, Jonathan Pellicciari, Ryan A. Duncan, Bolin Liao, Shuchi Ojha, John W. Freeland, Keith A. Nelson, Riccardo

- Comin, Gang Chen, and Caroline A. Ross, Appl. Phys. Lett. 113, 223105 (2018) pp1-5; doi: 10.1063/1.5049176
384. Limits of Directed Self-Assembly in Block Copolymers, Karim R. Gadelrab, Yi Ding, Ricardo Pablo-Pedro, Hsieh Chen, Kevin W. Gotrik, David G. Tempel, Caroline A. Ross, and Alfredo Alexander-Katz, Nano Lett. 2018, 18, 3766–3772 DOI: 10.1021/acs.nanolett.8b00997
385. Monolithic magneto-optical oxide thin films for on-chip optical isolation, Qingyang Du, Takian Fakhru, Yan Zhang, Juejun Hu and Caroline A. Ross, MRS Bulletin 43 413-418, 2018 <https://doi.org/10.1557/mrs.2018.127>
386. Static and Dynamic Magnetic Properties of Single-Crystalline Yttrium Iron Garnet Films Epitaxially Grown on Three Garnet Substrates, Takuya Yoshimoto, Taichi Goto, Kei Shimada, Bungo Iwamoto, Yuichi Nakamura, Hironaga Uchida, Caroline A. Ross, and Mitsuteru Inoue, Adv. Electron. Mater. 2018, 4, 1800106 p1-8 <https://doi.org/10.1002/aelm.201800106>
387. Monolithic On-chip Magneto-optical Isolator with 3 dB Insertion Loss and 40 dB Isolation Ratio Qingyang Du, Chuangtang Wang, Yifei Zhang, Yan Zhang, Takian Fakhru, Wei Zhang, Claudia Goncalves, Cesar Blanco, Kathleen Richardson, Longjiang Deng, Caroline A. Ross, Lei Bi, and Juejun Hu, ACS Photonics 2018, 5, 5010–5016: doi.org/10.1021/acsp Photonics.8b01257
388. Current-Induced Domain Wall Motion in a Compensated Ferrimagnet, Saima A. Siddiqui, Jiahao Han, Joseph T. Finley, Caroline A. Ross, and Luqiao Liu, Physical Review Letters 121, 057701 (2018)
389. Crested two-dimensional transistors, Tao Liu, Song Liu, Kun-Hua Tu, Henrik Schmidt, Leiqiang Chu, Du Xiang, Jens Martin, Goki Eda, Caroline A. Ross and Slaven Garaj, **Nature Nanotechnol.** 14 223-226 (2019) <https://doi.org/10.1038/s41565-019-0361-x>
390. Self-assembly of a silicon-containing side-chain liquid crystalline block copolymer in bulk and in thin films: kinetic pathway of a cylinder to sphere transition, Fen Liao, Ling-Ying Shi, Li-Chen Cheng, Sangho Lee, Rong Ran, K. G. Yager and Caroline A. Ross, **Nanoscale**, 11, 285–293 (2019); <https://doi.org/10.1039/c8nr07685e>
391. Oxygen-vacancy tuning of magnetism in SrTi_{0.75}Fe_{0.125}Co_{0.125}O_{3-δ} 2 perovskite, M. A. Opazo, S. P. Ong, P. Vargas, C. A. Ross, and J. M. Florez, **Phys. Rev. Materials** 3, 014404 (2019) <https://doi.org/10.1103/PhysRevMaterials.3.014404>

392. Perpendicular magnetic anisotropy and spin mixing conductance in polycrystalline europium iron garnet thin films, J. J. Bauer, E. R. Rosenberg, C. A. Ross, **Appl. Phys. Lett.** 114, 052403 (2019); <https://doi.org/10.1063/1.5074166> [Editor's Choice]
393. Thin Film Self-Assembly of a Silicon-Containing Rod–Coil Liquid Crystalline Block Copolymer, Ling-Ying Shi, Sangho Lee, Li-Chen Cheng, Hejin Huang, Fen Liao, Rong Ran, Kevin G. Yager, and Caroline A. Ross, **Macromolecules**, 52 (2), pp 679–689, (2019) <https://doi.org/10.1021/acs.macromol.8b01938>
394. Novel Emergent Symmetries in Block Copolymer Epitaxy, Yi Ding, Karim R. Gadelrab, Katherine Mizrahi Rodriguez, Hejin Huang, Caroline A. Ross, Alfredo Alexander-Katz, **Nature Commun.** 10 2974 (2019) <https://doi.org/10.1038/s41467-019-10896-5>
395. XMCD study of magnetism and valence state in iron-substituted strontium titanate, Astera S. Tang, Jonathan Pelliciari, Qi Song, Qian Song, Shuai Ning, John W. Freeland, Riccardo Comin, and Caroline A. Ross, **Phys. Rev. Materials** 3, 054408 pp1-9 (2019) <https://doi.org/10.1103/PhysRevMaterials.3.054408>
396. Monolithic integration of broadband optical isolators for polarization-diverse silicon photonics, Yan Zhang, Qingyang Du, Chuangtang Wang, Takian Fakhrul, Shuyuan Liu, Longjiang Deng, Duanni Huang, Paolo Pintus, John Bowers, Caroline A. Ross, Juejun Hu, and Lei Bi, **Optica** 6(4) 473-478 (2019), <https://doi.org/10.1364/OPTICA.6.000473>
397. Magneto-Optical Bi:YIG Films with High Figure of Merit for Nonreciprocal Photonics, Takian Fakhrul, Stana Tazlaru, Lukáš Beran, Yan Zhang, Martin Veis, and Caroline A. Ross, **Adv. Optical Mater.**, 1900056 p1-9 (2019) <https://doi.org/10.1002/adom.201900056>
398. Core–Shell and Zigzag Nanostructures from a Thin Film Silicon-Containing Conformationally Asymmetric Triblock Terpolymer, Ling-Ying Shi, Fen Liao, Li-Chen Cheng, Sangho Lee, Rong Ran, Zhihao Shen, and Caroline A. Ross, **ACS Macro Lett.** 8, 852–858, (2019) <https://doi.org/10.1021/acsmacrolett.9b00283>
399. Universal perpendicular orientation of block copolymer microdomains using a filtered plasma, Jinwoo Oh, Hyo Seon Suh, Youngpyo Ko, Yoonseo Nah, Jong-Chan Lee, Bongjun Yeom, Kookheon Char, Caroline A. Ross and Jeong Gon Son, **Nature Communications** 10 2912 (2019) <https://doi.org/10.1038/s41467-019-10907-5>
400. Structure, Ferroelectricity, and Magnetism in Self-Assembled BiFeO₃–CoFe₂O₄ Nanocomposites on (110)-LaAlO₃ Substrates, Guo Tian, Shuchi Ojha, Shuai Ning,

- Xingsen Gao, and Caroline A. Ross, **Adv. Electron. Mater.** 1900012 p1-9 (2019)
<https://doi.org/10.1002/aelm.201900012>
401. Self-assembled multiferroic perovskite–spinel nanocomposite thin films: epitaxial growth, templating and integration on silicon, Dong-Hun Kim, Shuai Ning and C.A., Ross, **J. Mater. Chem. C**, 7, 9128-9148 (2019) <https://doi.org/10.1039/c9tc02033k>
402. In Situ Study of ABC Triblock Terpolymer Self-Assembly under Solvent Vapor Annealing, Sangho Lee, Li-Chen Cheng, Kevin G. Yager, Muhammad Mumtaz, Karim Aissou, and Caroline A. Ross, **Macromolecules** 52, 1853–1863 (2019),
<https://doi.org/10.1021/acs.macromol.8b02273>
403. Interface-driven chiral magnetism and current-driven domain walls in insulating magnetic garnets, Can Onur Avci, Ethan Rosenberg, Lucas Caretta, Felix Büttner , Maxwell Mann, Colin Marcus, David Bono, Caroline A. Ross and Geoffrey S. D. Beach, **Nature Nanotechnology** 14 561–566 (2019)
<https://doi.org/10.1038/s41565-019-0421-2>
404. Anomalous Defect Dependence of Thermal Conductivity in Epitaxial WO₃ Thin Films, Shuai Ning, Samuel C. Huberman, Zhiwei Ding, Ho-Hyun Nahm, Yong-Hyun Kim, Hyun-Suk Kim, Gang Chen, and Caroline A. Ross, **Adv. Mater.** 31(43) 1903738 (2019), <https://doi.org/10.1002/adma.201903738>
405. Dysprosium substituted Ce:YIG thin films with perpendicular magnetic anisotropy for silicon integrated optical isolator applications, Yan Zhang, Qingyang Du, Chuangtang Wang, Wei Yan, Longjiang Deng, Juejun Hu, Caroline A. Ross, and Lei Bi, **APL Mater.** 7, 081119 (2019); <https://doi.org/10.1063/1.5112827>
406. Ferromagnetic resonance of perpendicularly magnetized Tm₃Fe₅O₁₂/Pt heterostructures, S. Crossley, A. Quindeau, A. G. Swartz, E. R. Rosenberg, L. Beran, C. O. Avci, Y. Hikita, C. A. Ross, and H. Y. Hwang, **Appl. Phys. Lett.** 115, 172402 (2019); <https://doi.org/10.1063/1.5124120>
407. Influence of dipolar interactions on the magnetic properties of superparamagnetic particle systems, F. Fabris, Kun-Hua Tu, C. A. Ross and W. C. Nunes, **J. Appl. Phys.** 126, 173905 (2019); <https://doi.org/10.1063/1.5125595>
408. Three port logic gate using forward volume spin wave interference in a thin yttrium iron garnet film, Taichi Goto, Takuya Yoshimoto, Bungo Iwamoto, Kei Shimada, Caroline A. Ross, Koji Sekiguchi, Alexander B. Granovsky, Yuichi Nakamura, Hironaga Uchida, Mitsuteru Inoue, **Scientific Reports** 9 16472 (2019), pp1-11 <https://doi.org/10.1038/s41598-019-52889-w>
409. Dysprosium Iron Garnet Thin Films with Perpendicular Magnetic Anisotropy on Silicon, Jackson J. Bauer, Ethan R. Rosenberg, Subhajit Kundu, K. Andre Mkhoyan,

Patrick Quarterman, Alexander J. Grutter, Brian J. Kirby, Julie A. Borchers, and Caroline A. Ross, **Adv. Electron. Mater.** 6 1900820 (2020),
<https://doi.org/10.1002/aelm.201900820>

410. Magnetic Domain Wall Based Synaptic and Activation Function Generator for Neuromorphic Accelerators, Saima A Siddiqui, Sumit Dutta, Astera Tang, Luqiao Liu, Caroline A Ross, Marc A Baldo, **Nano Lett.** 20 1033-1040 (2020)
<https://doi.org/10.1021/acs.nanolett.9b04200>
411. Heterogeneous integration of freestanding single-crystalline complex-oxide membranes, Hyun Kum, Hyungwoo Lee, Sungkyu Kim, Shane Lindemann, Wei Kong, Kuan Qiao, Peng Chen, Julian Irwin, June Hyuk Lee, Saïen Xie, Shruti Subramanian, Jaewoo Shim, Sang-Hoon Bae, Chanyeol Choi, Luigi Ranno, Seungju Seo, Sangho Lee, Jackson Bauer, Huashan Li, Kyusang Lee, Joshua A. Robinson, Caroline A. Ross, Darrell G. Schlom, Mark S. Rzchowski, Chang-Beom Eom, and Jeehwan Kim, **Nature** 578 75-81 (2020) <https://doi.org/10.1038/s41586-020-1939-z>
412. Voltage control of domain walls in magnetic nanowires for energy-efficient neuromorphic devices, Md Ali Azam, Dhritiman Bhattacharya, Damien Querlioz, Caroline A Ross and Jayasimha Atulasimha, **Nanotechnology** 31 145201 (2020) (9pp) <https://doi.org/10.1088/1361-6528/ab6234>
413. Nonlocal detection of out-of-plane magnetization in a magnetic insulator by thermal spin drag, Can Onur Avci, Ethan Rosenberg, Mantao Huang, Jackson Bauer, Caroline A. Ross, and Geoffrey S. D. Beach, **Phys. Rev. Lett.** 124 027701 (2020)
<https://doi.org/10.1103/PhysRevLett.124.027701>
414. Imparting Superhydrophobicity with a Hierarchical Block Copolymer Coating, Li-Chen Cheng, John W. Simonaitis, Karim R. Gadelrab, Mukarram Tahir, Yi Ding, Alfredo Alexander-Katz, and Caroline A. Ross, **Small**, 16, 1905509 (2020) p1-8,
<https://doi.org/10.1002/sml.201905509>
415. Thermal nucleation and high-resolution imaging of sub-micrometer magnetic bubbles in thin thulium iron garnet films with perpendicular anisotropy, Felix Büttner, Mohamad A. Mawass, Jackson Bauer, Ethan Rosenberg, Lucas Caretta, Can Onur Avci, Joachim Gräfe, Simone Finizio, C. A. F. Vaz, Nina Novakovic, Markus Weigand, Kai Litzius, Johannes Förster, Nick Träger, Felix Groß, Daniel Suzuki, Mantao Huang, Jason Bartell, Florian Kronast, Jörg Raabe, Gisela Schütz, Caroline A. Ross, and Geoffrey S. D. Beach, **Phys. Rev. Mater.** 4 011401R (2020) Rapid communication/Editor's Suggestion DOI: <https://doi.org/10.1103/PhysRevMaterials.4.011401>
416. Commensurability-Driven Orientation Control during Block Copolymer Directed Self-Assembly, Hyun Su Yun, Hyung Wan Do, Karl K. Berggren, Caroline A. Ross, and Hong Kyoon Choi, **ACS Appl. Mater. Interfaces** 12, 10852–10857 (2020),
<https://doi.org/10.1021/acsami.9b22104>

417. Interfacial Dzyaloshinskii-Moriya Interaction Arising from Rare-Earth Orbital Magnetism in Insulating Magnetic Oxides, Lucas Caretta, Ethan Rosenberg, Felix Büttner, Takian Fakhrul, Pierluigi Gargiani, Manuel Valvidares, Zhen Chen, Pooja Reddy, David A. Muller, Caroline A. Ross, Geoffrey S. D. Beach, **Nature Commun.** 11 1090 (2020) pp1-9 doi.org/10.1038/s41467-020-14924-7
418. Epitaxial growth of the cubic L2₁-Mn_{2.6}Ga Heusler alloy on MgO(001), Rocío M. Gutiérrez-Pérez¹, José T. Holguín-Momaca, Guo Tian, Shuchi Sunil Ojha, Ricardo López Antón, Caroline A. Ross, and Sion F. Olive-Méndez, **Appl. Phys. Lett.** 116, 132407 (2020) p1-4, <https://doi.org/10.1063/5.0001349>
419. Tough and Strong: Cross-Lamella Design Imparts Multifunctionality to Biomimetic Nacre, Hemant Kumar Raut, Alan F. Schwartzman, Rupambika Das, Fan Liu, Lifeng Wang, Caroline A. Ross, and Javier G. Fernandez, **ACS Nano** 14 9771-9779 (2020), <https://dx.doi.org/10.1021/acsnano.0c01511>
420. Vertical Lamellae Formed by Two-Step Annealing of a Rod-Coil Liquid Crystalline Block Copolymer Thin Film, Ling-Ying Shi, Ji Lan, Sangho Lee, Li-Chen Cheng, Kevin G. Yager, and Caroline A. Ross, **ACS Nano** 14 (4) 4289–4297 (2020), pp1-9, <https://dx.doi.org/10.1021/acsnano.9b09702>
421. Voltage Control of Magnetism above Room Temperature in epitaxial SrCo_{1-x}Fe_xO_{3-δ}, Shuai Ning, Qiqi Zhang, Connor Occhialini, Riccardo Comin, Xiaoyan Zhong and Caroline A. Ross, **ACS Nano** 14 (7) 8949–8957 (2020), <https://dx.doi.org/10.1021/acsnano.0c03750>
422. Resolving Triblock Terpolymer Morphologies by Vapor-Phase Infiltration, Sangho Lee, Ashwanth Subramanian, Nikhil Tiwale, Kim Kisslinger, Muhammad Mumtaz, Ling-Ying Shi, Karim Aissou, Chang-Yong Nam, and Caroline A. Ross, **Chem. Mater.** 32 (12), 5309–5316 (2020), <https://dx.doi.org/10.1021/acs.chemmater.0c01647>
423. Variable spin-charge conversion across metal-insulator transition, Taqiyyah S. Safi, Pengxiang Zhang, Yabin Fan, Zhongxun Guo, Jiahao Han, Ethan R. Rosenberg, Caroline Ross, Yaroslav Tserkovnyak and Luqiao Liu, **Nature Commun.** 11 476 (2020) pp1-6, <https://doi.org/10.1038/s41467-020-14388-9>
424. Spin-torque oscillation in a magnetic insulator probed by a single-spin sensor, H. Zhang, M. J. H. Ku, F. Casola, C. H. R. Du, T. van der Sar, M. C. Onbasli, C. A. Ross, Y. Tserkovnyak, A. Yacoby, and R. L. Walsworth, **Phys. Rev. B** 102, 024404 (2020) p1-14, <https://doi.org/10.1103/PhysRevB.102.024404>
425. Relativistic Kinematics of a Magnetic Soliton, Lucas Caretta, Se-Hyeok Oh, Takian Fakhrul, Dong-Kyu Lee, Byung Hun Lee, Se Kwon Kim, Caroline A. Ross, Kyung-Jin Lee, and Geoffrey S. D. Beach, **Science** 370(6523) p1438-1442 (2020) <https://www.science.org/doi/10.1126/science.aba5555>

426. Machine Learning Predictions of Block Copolymer Self-Assembly, K.-H. Tu, H. Huang, S. Lee, W. Lee, Z. Sun, A. Alexander-Katz, C. A. Ross, **Adv. Mater.** (2020), 2005713 p1-8, <https://dx.doi.org/10.1002/adma.202005713>
427. Self-directed Self-assembly of 3D Tailored Block Copolymer Nanostructures, Hejin Huang, Runze Liu, Caroline A. Ross, and Alfredo Alexander-Katz, **ACS Nano** (2020), 14, 11, 15182–15192 <https://dx.doi.org/10.1021/acsnano.0c05417>
428. Platinum Infiltration of a Block Copolymer for Interconnected Three-Dimensional Metal Nanostructures, Wonmoo Lee, Sangho Lee, Astera S. Tang, Chansol Kim, Runze Liu, Kiseop Im, Hee-Tae Jung, and Caroline A. Ross, **ACS Appl. Nano Mater.** 4(1) 793-801 (2021), <https://pubs.acs.org/doi/10.1021/acsanm.0c03115>
429. An antisite defect mechanism for room temperature ferroelectricity in orthoferrites, Shuai Ning, Abinash Kumar, Konstantin Klyukin, Eunsoo Cho, Jong Heon Kim, Tingyu Su, Hyun-Suk Kim, James M. LeBeau, Bilge Yildiz and Caroline A. Ross, **Nat. Commun.** 12 4298 p1-7 (2021) doi.org/10.1038/s41467-021-24592-w
430. Magnetism and site occupancy in epitaxial Y-rich yttrium iron garnet films, Tingyu Su, Shuai Ning, Eunsoo Cho, and Caroline A. Ross, **Phys. Rev. Mater.** 5, 094403 p1-9 (2021) <https://doi.org/10.1103/PhysRevMaterials.5.094403>
431. First-principles calculation of oxygen vacancy effects on the magnetic properties of the perovskite SrNiO₃, Eunsoo Cho, Konstantin Klyukin, Shuai Ning, Jiarui Li, Riccardo Comin, Robert J. Green, Bilge Yildiz and Caroline A. Ross, **Phys. Rev. Mater.** 5, 094413 p1-9 (2021), <https://doi.org/10.1103/PhysRevMaterials.5.094413>
432. Antisite Defects Stabilized by Antiphase Boundaries in YFeO₃ Thin Films, Abinash Kumar, Konstantin Klyukin, Shuai Ning, Cigdem Ozsoy-Keskinbora, Mikhail Ovsyanko, Felix van Uden, Ruud Krijnen, Bilge Yildiz, Caroline A. Ross, and James M. LeBeau, **Adv. Funct. Mater.** 2107017 p1-7 (2021) <https://doi.org/10.1002/adfm.202107017>
433. Exsolution Synthesis of Nanocomposite Perovskites with Tunable Electrical and Magnetic Properties, Jiayue Wang, Komal Syed, Shuai Ning, Iradwikanari Waluyo, Adrian Hunt, Ethan J. Crumlin, Alexander K. Opitz, Caroline A. Ross, William J. Bowman, and Bilge Yildiz, **Adv. Funct. Mater.** 2108005, p1-15 (2021) <https://doi.org/10.1002/adfm.202108005>
434. Magnetism and spin transport in platinum/scandium-substituted terbium iron garnet heterostructures, Bharat Khurana, Jackson J. Bauer, Pengxiang Zhang, Taqiyyah Safi, Chung-Tao Chou, Justin T. Hou, Takian Fakhrol, Yabin Fan, Luqiao

Liu, and Caroline A. Ross, **Phys. Rev. Mater.** 5, 084408 (2021),
<https://doi.org/10.1103/PhysRevMaterials.5.084408>

435. Selective Deposition of Copper on Self-Assembled Block Copolymer Surfaces via Physical Vapor Deposition, Sangho Lee, Wonmoo Lee, Hee-Tae Jung, and Caroline A. Ross, **ACS Applied Materials & Interfaces** 13 (44), 52931-52937 (2021),
<https://doi.org/10.1021/acsami.1c15272>
436. High Figure of Merit Magneto-Optical Ce- and Bi-Substituted Terbium Iron Garnet Films Integrated on Si, Takian Fakhru, Stana Tazlaru, Bharat Khurana, Lukáš Beran, Jackson Bauer, Michal Vančík, Ariane Marchese, Ekaterina Tsotsos, Miroslav Kučera, Yan Zhang, Martin Veis, and Caroline A. Ross, **Adv. Optical Mater.**, 9, 2100512 p1-10 (2021) <https://doi.org/10.1002/adom.202100512>
437. Metallic Nanomeshes Fabricated by Multimechanism Directed Self-Assembly, Runze Liu, Hejin Huang, Zehao Sun, Alfredo Alexander-Katz, and Caroline A. Ross, **ACS Nano** 15 (10), 16266-16276 (2021), <https://doi.org/10.1021/acsnano.1c05315>
438. Bending Behavior and Directed Self-Assembly of Rod-Coil Block Copolymers, Ling-Ying Shi, Sangho Lee, Qingyang Du, Bo Zhou, Lin Weng, Runze Liu, and Caroline A. Ross, **ACS Appl. Mater. Interfaces** 13, 10437-10445 (2021)
<https://doi.org/10.1021/acsami.0c22177>
439. Magnetic proximity effect in magnetic-insulator/heavy-metal heterostructures across the compensation temperature, Jackson J. Bauer, Patrick Quarterman, Alexander J. Grutter, Bharat Khurana, Subhajit Kundu, K. Andre Mkhoyan, Julie A. Borchers, and Caroline A. Ross, **Phys. Rev. B** 104, 094403 (2021),
<https://doi.org/10.1103/PhysRevB.104.094403>
440. Annealing Process Dependence of the Self-Assembly of Rod-Coil Block Copolymer Thin Films, Ling-Ying Shi, Chengxiao Yin, Bo Zhou, Wei Xia, Lin Weng, and Caroline A. Ross, **Macromolecules** 54, 1657-1664 (2021)
<https://dx.doi.org/10.1021/acs.macromol.0c02712>
441. Magnetic Properties and Growth-Induced Anisotropy in Yttrium Thulium Iron Garnet Thin Films, Ethan R. Rosenberg, Kai Litzius, Justin M. Shaw, Grant A. Riley, Geoffrey S. D. Beach, Hans T. Nembach, and Caroline A. Ross, **Adv. Electron. Mater.** 2100452 p1-11 (2021) <https://doi.org/10.1002/aelm.202100452>
442. Magneto-optical properties of InSb for infrared spectral filtering, Nolan Peard, Dennis Callahan, Joy C. Perkinson, Qingyang Du, Neil S. Patel, Takian Fakhru, John LeBlanc, Caroline A. Ross, Juejun Hu, and Christine Y. Wang, **Journal of Applied Physics** 129, 203104 (2021); <https://doi.org/10.1063/5.0048836>
443. Magnetoelectric coupling in self-assembled BiFeO₃-CoFe₂O₄ nanocomposites on (110)-LaAlO₃ substrates, Zhuhua Mo, Guo Tian, Wenda Yang, Shuai Ning,

Caroline A. Ross, Xingsen Gao, and Junming Liu, **APL Mater.** 9, 041109 p1-6 (2021); <https://doi.org/10.1063/5.0043071>

444. Origins of transverse voltages generated by applied thermal gradients and applied electric fields in ferrimagnetic-insulator/heavy-metal bilayers, Arnab Bose, Rakshit Jain, Jackson J. Bauer, Robert A. Buhrman, Caroline A. Ross, Daniel C. Ralph, **Phys. Rev. B** 105, L100408 p1-6 (2022) <https://doi.org/10.1103/PhysRevB.105.L100408>
445. Magnetoelectric Vertically Aligned Nanocomposite of YFeO_3 and CoFe_2O_4 , Abinash Kumar, Shuai Ning, Tingyu Su, Eunsoo Cho, James M. LeBeau, and Caroline A. Ross, **Adv. Electron. Mater.** 2200036 p1-7 (2022) <https://doi.org/10.1002/aelm.202200036>
446. Selective sequential infiltration synthesis of ZnO in the liquid crystalline phase of silicon-containing rod-coil block copolymers, Ling-Ying Shi, Ashwanth Subramanian, Lin Weng, Sangho Lee, Kim Kisslinger, Chang-Yong Nam and Caroline A. Ross, **Nanoscale**, 14, 1807-13 (2022) <https://pubs.rsc.org/en/content/articlehtml/2022/nr/d1nr06065a>
447. Self-Assembled Multiphase Nanocomposite $\text{SrCo}_{1-x}\text{Fe}_x\text{O}_{3-\delta}$ Thin Films with Voltage-Controlled Magnetism for Spintronic Applications, Eunsoo Cho, Abinash Kumar, Shuai Ning, James M. LeBeau, and Caroline A. Ross, **ACS Applied Nano Materials** 5(10), 14646-14653 (2022) <https://pubs.acs.org/doi/10.1021/acsanm.2c03019>
correction to grant number: ACS Appl. Nano Mater. 2024, 7, 8376–8376, <https://pubs.acs.org/doi/pdf/10.1021/acsanm.4c01524>
448. Voltage modulated magnetic anisotropy of rare earth iron garnet thin films on a piezoelectric substrate, Miela J. Gross, Walid A. Misba, Kensuke Hayashi, Jayasimha Atulasimha, and Caroline A. Ross, **Appl. Phys. Lett.** 121, 252401 p1-6 (2022); <https://doi.org/10.1063/5.0128842>
449. Magnetism and microstructure of codeposited yttrium iron garnet-barium titanate films, Tingyu Su and Caroline A. Ross, **Appl. Phys. Lett.** 121, 231604 p1-7 (2022); <https://doi.org/10.1063/5.0128306>
450. Oxygen Deficiency and Migration-Mediated Electric Polarization in Magnetic Fe,Co-Substituted $\text{SrTiO}_{3-\delta}$, E. A. Cortés Estay, S. P. Ong, C. A. Ross and J. M. Florez, **Magnetochemistry** 8(11), 144 p1-30 (2022) <https://doi.org/10.3390/magnetochemistry8110144>
451. Crystallization and stability of rare earth iron garnet/Pt/gadolinium gallium garnet heterostructures on Si, Miela J. Gross, Jackson J. Bauer, Supriya Ghosh, Subhajit

Kundu, Kensuke Hayashi, Ethan R. Rosenberg, K. Andre Mkhoyan, Caroline A. Ross, **Journal of Magnetism and Magnetic Materials** 564 170043 p1-8 (2022)
<https://doi.org/10.1016/j.jmmm.2022.170043>

452. Thickness-dependent magneto-optical properties of ion beam sputtered polycrystalline Ce₁Y₂Fe₅O₁₂ films, Yuki Yoshihara, Tomoya Sugita, Pang Boey Lim, Yasuyuki Tamba, Hiroaki Inoue, Kazushi Ishiyama, Mitsuteru Inoue, Caroline A. Ross, Taichi Goto, **Optical Materials** 133 112967 p1-8 (2022)
<https://doi.org/10.1016/j.optmat.2022.112967>
453. Emergence of layered nanoscale mesh networks through intrinsic molecular confinement self-assembly, Zehao Sun, Runze Liu, Tingyu Su, Hejin Huang, Ken Kawamoto, Ruiqi Liang, Bin Liu, Mingjiang Zhong, Alfredo Alexander-Katz, Caroline A. Ross and Jeremiah A. Johnson, **Nature Nanotech.** 18 273-280 (2023)
<https://doi.org/10.1038/s41565-022-01293-z>
454. Experimental and Computational Evaluation of Self-Assembled Morphologies in Diblock Janus Bottlebrush Copolymers, Runze Liu, Zehao Sun, Hejin Huang, Jeremiah A. Johnson, Alfredo Alexander-Katz, and Caroline A. Ross, **Nano Letters** 23 (1), 177-182 (2023) <https://pubs.acs.org/doi/10.1021/acs.nanolett.2c03927>
455. Synthesis and Self-Assembly of Silicon-Containing Azobenzene Liquid Crystalline Block Copolymers, Lin Weng, Mingchao Ma, Chenxiao Yin, Zhi-Xiong Fei, Ke-Ke Yang, Caroline A. Ross, and Ling-Ying Shi, **Macromolecules** 56 470-479 (2023)
<https://doi.org/10.1021/acs.macromol.2c02343>
456. First-principles based Monte Carlo modeling of the magnetization of oxygen-deficient Fe-substituted SrTiO₃, Juan M. Florez, Miguel A. Solis, Emilio A. Cortes Estay, E. Suarez Morell and Caroline A. Ross, **Phys. Chem. Chem. Phys.**, 25, 19214-19229 (2023) <https://doi.org/10.1039/d3cp01078c>
457. Effect of intense x-ray free-electron laser transient gratings on the magnetic domain structure of Tm:YIG, Victor Ukleev, Max Burian, Sebastian Gliga, C. A. F. Vaz, Benedikt Rösner, Danny Fainozzi, Gediminas Seniutinas, Adam Kubec, Roman Mankowsky, Henrik T. Lemke, Ethan R. Rosenberg, Caroline A. Ross, Elisabeth Müller, Christian David, Cristian Svetina, Urs Staub, **J. Appl. Phys.** 133, 123902 (2023) <https://doi.org/10.1063/5.0119241>
458. Growth of magneto-optical cerium-substituted yttrium iron garnet on yttrium aluminum garnet using ion beam sputtering, Yuki Yoshihara; Kazushi Ishiyama; Toshiaki Watanabe; Pang Boey Lim; Mitsuteru Inoue, Caroline A. Ross; Taichi Goto, **Appl. Phys. Lett.** 123, 112404 (2023) <https://doi.org/10.1063/5.0161296>
459. Revealing Site Occupancy in a Complex Oxide: Terbium Iron Garnet, Ethan Rosenberg, Jackson Bauer, Eunsoo Cho, Abinash Kumar, Jonathan Pellicciari, Connor A Occhialini, Shuai Ning, Allison Kaczmarek, Richard Rosenberg, John W.

Freeland, Yu-Chia Chen, Jian-Ping Wang, James LeBeau, Riccardo Comin, F. M. F. de Groot, and Caroline A Ross, **Small** 2300824 (2023), pp1-10
<https://doi.org/10.1002/sml.202300824>

460. Sputter-Deposited α -MoO₃ Interlayers for van der Waals Epitaxy and Film Transfer, Sangho Han, Sangho Lee, Dohyun Ko, Xinyuan Zhang, Jeehwan Kim, Caroline A. Ross, and Dong Hun Kim, **Adv. Funct. Mater.** 2306909 (2023) p1-9
<https://doi.org/10.1002/adfm.202306909>
461. Engineering an easy-plane anisotropy in an epitaxial europium iron garnet (110) film, Yixuan Song, Allison C. Kaczmarek, Geoffrey S. D. Beach, and Caroline A. Ross, **Phys. Rev. Mater.** 7, 084407 (2023) p1-11
<http://doi.org/10.1103/PhysRevMaterials.7.084407>
462. Large Anomalous Frequency Shift in Perpendicular Standing Spin Wave Modes in BiYIG Films Induced by Thin Metallic Overlayers, Byung Hun Lee, Takian Fakhrul, Caroline A. Ross, and Geoffrey S. D. Beach, **Phys. Rev. Lett.** 130, 126703 (2023) p1-6
<https://doi.org/10.1103/PhysRevLett.130.126703>
463. High-frequency magnetic response of superparamagnetic composites of spherical Fe₆₅Co₃₅ nanoparticles, Kacper Brzuszek, Caroline A. Ross, Andrzej Janutka, J. **Magn. Magn. Mater.** 573 170651 (2023) p1-9
<https://doi.org/10.1016/j.jmmm.2023.170651>
464. High-Frequency Magnetic Response of Arrays of Planar Fe₆₅Co₃₅ Nanodots: Effects of Bias Field and Thermal Fluctuations, Kacper Brzuszek, Caroline A. Ross and Andrzej Janutka, **IEEE Trans. Magn.**, 59 (11) 7100306 (2023), [cover art]
<http://doi.org/10.1109/TMAG.2023.3313871>
465. Coherent magnon-induced domain-wall motion in a magnetic insulator channel, Yabin Fan, Miela J. Gross, Takian Fakhrul, Joseph Finley, Justin T. Hou, Steven Ngo, Luqiao Liu, & Caroline A. Ross, **Nature Nanotechnol.** 18 1000-1004 (2023),
<https://doi.org/10.1038/s41565-023-01406-2>
466. Composition-Dependent Ferroelectricity of LuFeO₃ Orthoferrite Thin Films, Eunsoo Cho, Konstantin Klyukin, Tingyu Su, Allison Kaczmarek, and Caroline A. Ross, **Adv. Electron. Mater.** 2300059 (2023) pp1-8.
<https://doi.org/10.1002/aelm.202300059>
467. Reversible Morphology Locking via Metal Infiltration in a Block Copolymer, Mingchao Ma, Runze Liu, Tingyu Su, Zehao Sun, and Caroline A. Ross, **ACS Nano** 17, 12225–12233, (2023) <https://doi.org/10.1021/acsnano.3c00723>
468. Substrate-Dependent Anisotropy and Damping in Epitaxial Bismuth Yttrium Iron Garnet Thin Films, Takian Fakhrul, Bharat Khurana, Hans Toya Nembach, Justin M.

Shaw, Yabin Fan, Grant A. Riley, Luqiao Liu, and Caroline A. Ross, **Adv. Mater. Interfaces** 2300217 (2023) p1-10 <http://doi.org/10.1002/admi.202300217>

469. Influence of substrate on interfacial Dzyaloshinskii-Moriya interaction in epitaxial $\text{Tm}_3\text{Fe}_5\text{O}_{12}$ films, Takian Fakhru, Siying Huang, Yixuan Song, Bharat Khurana, Geoffrey S. D. Beach, and Caroline A. Ross, **Phys. Rev. B** 107, 054421 (2023) p1-8 <https://doi.org/10.1103/PhysRevB.107.054421>
470. Molecular Field Coefficient Modeling of Temperature-Dependent Ferrimagnetism in a Complex Oxide, Miela J. Gross, Tingyu Su, Jackson J. Bauer, Caroline A. Ross, **Phys. Rev. Applied** 12 014060 (2024) <https://doi.org/10.1103/PhysRevApplied.21.014060>
471. Directed Self-Assembly of Oxide Nanocomposites by Ion-Beam Lithography, Tingyu Su, Yang Yu, and Caroline A. Ross, **Nano Lett.** 24(1) 195-201 (2024) <https://doi.org/10.1021/acs.nanolett.3c03703>
472. Damping and interfacial Dzyaloshinskii-Moriya interaction in thulium iron garnet/bismuth-substituted yttrium iron garnet bilayers, Takian Fakhru, Bharat Khurana, Byunghun Lee, Siying Huang, Hans Nembach, Geoffrey S. D. Beach, Caroline A. Ross, **ACS Applied Materials & Interfaces** 16 (2), 2489-2496 (2024) <https://doi.org/10.1021/acsami.3c14706>
473. Perovskite-derived layered crystal structure in $\text{SrCo}_{0.26}\text{Fe}_{0.74}\text{O}_{3-\delta}$ thin films, Eunsoo Cho, Abinash Kumar, Shuai Ning, James M. LeBeau, and Caroline A. Ross **Advanced Materials Interfaces** 11(7) 2300807 (2024) <https://doi.org/10.1002/admi.202300807> [cover art]
474. High-frequency magnetic response of superparamagnetic composites of spherical Fe and Fe_3O_4 nanoparticles, Kacper Brzuszek, Caroline A. Ross, Andrzej Janutka, **J. Magn. Magn. Mater.** 599 172070 (2024) p1-9 <https://doi.org/10.1016/j.jmmm.2024.172070>
475. High-frequency magnetic response of crystalline and nanocrystalline antiferromagnetic NiO, Kacper Brzuszek ; Caroline A. Ross ; Andrzej Janutka, **AIP Advances** 14, 025222 (2024) p1-5 <https://doi.org/10.1063/9.0000781>
476. Ionic-Liquid-Gating-Induced Hydrogenation in Epitaxial Strontium Ferrite, Fengbo Yan, Vladislav Korostelev, Eunsoo Cho, Kaichuang Yang, Jingrui Wu, Qiyang Lu, Feng Luo, Caroline A. Ross, Konstantin Klyukin, and Shuai Ning, **Adv. Funct. Mater.** 34(27) 2316608 (2024) p1-8, <https://doi.org/10.1002/adfm.202316608>

477. Temperature Evolution of Magnon Propagation Length in Tm₃Fe₅O₁₂ Thin Films: Roles of Magnetic Anisotropy and Gilbert Damping, Amit Chanda, Christian Holzmänn, Noah Schulz, Aladin Ullrich, Derick DeTellem, Manfred Albrecht, Miela Gross, Caroline A. Ross, Dario A. Arena, Manh-Huong Phan, and Hariharan Srikanth, **ACS Nano** 18 (9), 7223-7240 (2024) <https://doi.org/10.1021/acsnano.3c12495>
478. Phase Formation and Exchange Bias in LuFeO₃-CoFe₃-xO₄ Nanocomposite Film, Eunsoo Cho, Aubrey N. Penn, and Caroline A. Ross, **ACS Appl. Electron. Mater.** 6, 3638-3646 (2024) <https://doi.org/10.1021/acsaelm.4c00339>
479. Acoustically driven ferromagnetic resonance in YIG thin films, Thomas Wong, Jihun Park, Kensuke Hayashi, Miela J. Gross, Ryan Kim, Xinjun Wang, Samuel E. Lofland, Nathan Orloff, Daniel B. Gopman, Seunghun Lee, Paul A. Crowell, Caroline A. Ross, and Ichiro Takeuchi, **Appl. Phys. Lett.** 125, 052402 (2024) <https://doi.org/10.1063/5.0211718>
480. Atomic order of rare earth ions in a complex oxide: a path to magnetotaxial anisotropy, Allison C. Kaczmarek, Ethan R. Rosenberg, Yixuan Song, Kevin Ye, Gavin A. Winter¹, Aubrey N. Penn³, Rafael Gomez-Bombarelli, Geoffrey S. D. Beach ¹ & Caroline A. Ross, **Nature Communications** 15 5083 (2024) p1-7 <https://doi.org/10.1038/s41467-024-49398-4>
481. Highly-Sensitive and High Operating Range Fully-Printed Humidity Sensors Based on BiFeO₃/BiOCl Heterojunctions, Paul Fourmont, Fabrice Vaussenat, Mathieu Gratuze, Caroline A. Ross, and Sylvain G. Cloutier, **Adv. Electron. Mater.** 2400156 (2024) p1-9, <https://doi.org/10.1002/aelm.202400156>
482. Magneto-optical Bi-substituted yttrium and terbium iron garnets for on-chip crystallization via microheaters, Kensuke Hayashi, Khoi Phuong Dao, Miela J. Gross, Luigi Ranno, Jia Xu Brian Sia, Takian Fakhrul, Qingyang Du, Nilanjan Chatterjee, Juejun Hu, and Caroline A. Ross, **Adv. Optical Mater.**, 12(25) 2400708 (2024) <https://DOI.org/10.1002/adom.202400708>
483. Temperature-Dependent Surface Anisotropy in (110) Epitaxial Rare Earth Iron Garnet Films, Y Song, K Lasinger, H Tang, J Li, GSD Beach, CA Ross, **Small**, 20(52), 2407381 (2024) <https://doi.org/10.1002/sml.202407381>
484. Self-Assembly of Hierarchical Silicon-Containing Block Copolymers with Cross-Linkable 3 nm Smectic Motifs for Nanopatterning and Osmotic Energy Conversion Membranes, J Sun, C Cui, M Ma, L Gao, CA Ross, LY Shi, **ACS nano** 18 (42), 28936-28945 (2024), <https://doi.org/10.1021/acsnano.4c09266>

485. Engineering Three-Dimensional Morphologies in a Block Copolymer by Reversible Metal Infiltration, Mingchao Ma, C.A. Ross, **ACS Applied Polymer Materials** 6 (18), 11626-11632 (2024), <https://doi.org/10.1021/acsapm.4c02331>
486. Rare-Earth Iron Garnet Superlattices with Sub-unit Cell Composition Modulation, B Khurana, A.C. Kaczmarek, C.T. Chou, T. Su, K. Lasinger, T. Grossmark, D.C. Bono, L. Liu, C.A. Ross, **ACS Nano** 18 (52), 35269–35275 (2024)
- submitted
487. Strain Mediated Voltage Control of Magnetic Anisotropy and Magnetization Reversal in Bismuth Substituted Yttrium Iron Garnet Films and Meso-structures, Walid Al Misba, Miela Josephine Gross, Kensuke Hayashi, Daniel B Gopman, Caroline A Ross, Jayasimha Atulasimha, **arXiv preprint** arXiv:2501.00980
488. Anisotropic transverse magnetoresistance temperature dependence in Mn₃Ga Weyl semimetal with chiral anomaly, Isis M Cota-Martínez, R López Antón, AM Garay-Tapia, JA Matutes-Aquino, CR Santillán-Rodríguez, RJ Saénz-Hernández, RM Gutiérrez-Pérez, JT Holguín-Momaca, CA Ross, Sion F Olive-Méndez, **arXiv preprint** arXiv:2411.09031
489. Imaging interstitial atoms with multislice electron ptychography, Zhen Chen, Yu-Tsun Shao, Steven E Zeltmann, Ethan R Rosenberg, Caroline A Ross, Yi Jiang, David A Muller, **arXiv preprint** arXiv:2407.18063

Proceedings of Refereed Conferences

1. Ross, C.A. and J. E. Evetts, “A study of threshold and incubation behavior during electromigration in thin film metallization,” Proc. Materials Research Society 107, 321-6 (1988).
2. Ross, C.A., L. M. Goldman and F. Spaepen, “Multilayered metallic thin films prepared by dual bath electrodeposition,” Proc. Materials Research Society, 160, 571-6 (1990).
3. Ross, C.A., L. M. Goldman, J. A. Barnard and F. Spaepen, “A study of the diffusion of phosphorus in Ni/amorphous NiP_x and a-NiP_x/NiP_y multilayers,” Proc. Materials Research Society, 205, 239-44 (1991)
4. Ross, C.A., “Stress and electromigration in thin film metallization”, Proc. Materials Research Society, 225, 35-46 (1991)
5. Ross, C.A. and J.J. Barrese, “Stress, mechanical properties and composition measurements in sputtered thick alumina films,” Proc. Materials Research Society, 308, 595-600 (1993)

6. Ross, C.A., "Mechanical stress measurements in window-plated permalloy strips," Proc. Materials Research Society, 308, 39-44 (1993)
7. Ross, C.A. and R. Malmhall, "Properties of sputtered alumina overcoats for inductive thin film heads," Proceedings of the 3rd International Symposium on Magnetic Materials, Processes and Devices, Electrochemical Society PV, 94-6, 165-73 (1993)
8. Yamashita, T., R. Ranjan, L.H. Chan, M. Lu, C.A. Ross and G. Tarnopolsky, "The effect of microstructure on the magnetic properties of thin film recording media," Proc. Materials Research Society, 343, 285-96 (1994)
9. Ross, C.A., R. Ranjan and J. Chang, "Stress, microstructure and magnetic properties of thin sputtered CoNiPt alloy films," Proc. Materials Research Society, 343, 315-20 (1994)
10. Ross, C.A. and J.J. Barrese, "Mechanical properties of alumina films sputtered over steps," Proc. Materials Research Society, 356, 201-6 (1995)
11. Tang, K., M.R. Visokay, R. Sinclair, C.A. Ross, R. Ranjan and T. Yamashita, "Observation of micromagnetic structure in computer hard disks by Lorentz transmission electron microscopy," Proc. Materials Research Society, 384, 21-6 (1995)
12. Ross, C.A., and F.M. Ross, "Microstructural development in thin CoCrTa films on Cr," Proc. Materials Research Society 475 125-30 (1997)
13. Tsui, T.Y., C.A. Ross and G. Pharr, "Effects of adhesion on the measurement of thin film mechanical properties by nanoindentation," Proc. Materials Research Society, 473 51-6 (1997)
14. Tsui, T.Y., C.A. Ross and G. Pharr, "Nanoindentation hardness of soft films on hard substrates: effects of the substrate," Proc. Materials Research Society 473 57-62 (1997)
15. Saha, R., T.Y. Tsui, C.A. Ross and W.D. Nix, "Scanning stiffness microscopy - a novel method for detecting subsurface cracks," Proc. Materials Research Society 473 285-92 (1997)
16. Rosenblum, M.P. and C.A. Ross, "A method for laser zone texturing of glass based magnetic media using Nd:YAG lasers", Proc. Materials Research Society 517 427-32 (1998)
17. Twisselmann, D.J, B.T. Adekor, M. Farhoud, H.I. Smith and C.A. Ross, "In-plane anisotropy in CoCrTaPt/Cr films deposited onto substrates with controlled topography", Proc. Materials Research Society 517 193-8 (1998)

18. Henry I. Smith, D.J.D. Carter, J. Ferrera, D. Gil, J. Goodberlet, J.T. Hastings, M.H. Lim, M. Meinhold, R. Menon, E.E. Moon, C.A. Ross, T. Savas, M. Walsh, F. Zhang, "Soft x-rays for deep sub-100 nm lithography, with and without masks" Proc. Materials Research Society 584 (2000)
19. M. Shima, M. Hwang, M. Farhoud, T.A. Savas, A. Tkaczyk, H.I. Smith, C.A. Ross and W. Schwarzacher, "Fabrication and magnetic properties of arrays of electrodeposited cylinders", Proc. Electrochem. Soc. PV2000-29 p111 (2001)
20. Dunin-Borkowski RE, Newcomb SB, McCartney MR, Ross CA, Farhoud M "Off-axis electron holography of nanomagnet arrays fabricated by interferometric lithography," Electron Microscopy and Analysis 2001, Onstitute of Physics Conference Series (168): 485-488 (2001)
21. N. Dao, F.J. Castano, C.A. Ross, S.L. Whittenburg, "Micromagnetics simulation of asymmetric pseudo-spin-valve dots", Proc. Mater. Res. Soc. (2002)
22. T.J. Bromwich, D.G. Bucknall, B. Warot, A.K. Petford-Long, C.A. Ross, "TEM analysis and fabrication of magnetic nanoparticles", Inst. Phys. Conf. Series No. 179, Section 2, p95; presented at Electron Microscopy and Analysis Group Conference EMAG2003, Oxford 2003
23. A.K. Petford-Long, T.J. Bromwich, A. Kohn, V. Jackson, T. Kasama, R. Dunin-Borkowski, C.A. Ross, "In situ TEM studies of magnetization processes in magnetic nanostructures", in In-Situ Electron Microscopy of Materials, edited by Paulo J. Ferreira, Ian M. Robertson, Gerhard Dehm, Hiroyasu Saka (Mater. Res. Soc. Symp. Proc. 907E, Warrendale, PA, 2006), paper 0907-MM04-01, pp1-12
24. V. Sivakumar, S. Kumar, C. A. Ross, Y. Shao-Horn, Electrochemical Lithium Insertion of into Iron Oxide Spinel Thin Films and Nanoparticles: Changes in Structure and Magnetic Properties, Electrochemical Society Transactions – Denver, Volume 2 (8), Electrode Materials and Processes for Energy Conversion and Storage, p1 - 11 (2006)
25. J. Llandro, T.J. Hayward, J.A.C. Bland, D. Morecroft, F.J. Castaño, I.A. Colin and C.A. Ross, Moment Selective Digital Detection of Single Magnetic Beads for Multiplexed Bioassays, Proc. European Science Foundation, AIP Conference Proceedings series 1025 176-185 (2008)
26. Lei Bi, Hyun-Suk Kim, Juejun Hu, Lionel C. Kimerling and C. A. Ross, $\text{As}_2\text{S}_3/\text{Sr}(\text{Ti}_{0.7}\text{Co}_{0.3})\text{O}_3$ and $\text{As}_2\text{S}_3/\text{Sr}(\text{Ti}_{0.6}\text{Fe}_{0.4})\text{O}_3$ strip-loaded waveguides for integrated magneto-optical isolator applications, Proc. SPIE 7218 721803 (2009)

27. Lei Bi, Juejun Hu, Lionel Kimerling and C. A. Ross, Fabrication and characterization of $\text{As}_2\text{S}_3/\text{Y}_3\text{Fe}_5\text{O}_{12}$ and $\text{Y}_3\text{Fe}_5\text{O}_{12}/\text{SOI}$ strip-loaded waveguides for integrated optical isolator applications, Proc. SPIE vol 7604 760406 (2010)
28. C.A. Ross, Y.S. Jung, V.P. Chuang, J.G. Son, K.W. Gotrik, R.A. Mickiewicz, J.K.W. Yang, J.B. Chang, K.K. Berggren, J. Gwyther, I. Manners, Templated self-assembly of Si-containing block copolymers for nanoscale device fabrication, Proc. SPIE vol 7637 76370H (2010)
29. Magnetocaloric properties of rapidly solidified $\text{Ni}_{51.1}\text{Mn}_{31.2}\text{In}_{17.7}$ Heusler alloy ribbons, J.L. Sánchez Llamazares¹, B. Hernando, V.M. Prida, C. García, C.A. Ross, Proc. MRS, 1200, G07-05, p1-6 (2010)
30. Thermal Annealing Influence on Magnetic and Structural Properties of $\text{Cu}_{56}\text{Ga}_{28}\text{Mn}_{16}$ Microwires, V. M. Prida, V. Vega, J. L. Sánchez-Llamazares, M. L. Sánchez, J.D. Santos, B. Hernando, Ll. Escoda, J. J. Suñol, C. García and C. A. Ross, Proc. MRS, 1200, G09-03, p1-6 (2010)
31. Monolithic Integration of Chalcogenide glass/Iron Garnet Waveguides and Resonators for On-chip Nonreciprocal Photonic Devices, Lei Bi, Juejun Hu, Gerald F. Dionne, Lionel Kimerling and C. A. Ross, Proc. SPIE 7941, 794105 (2011)
32. Magnetoelastic Effects in Nanostructures, J.I. Arnaudas, A. Badia-Majós, L. Berbil-Bautista, M. Bode, F.J. Castaño, M. Ciria, C. de la Fuente, J.L. Diez-Ferrer, S. Krause, B.G. Ng, R.C. O'Handley, C.A. Ross and R. Wiesendanger, *Solid State Phenomena Vols. 168-169 (2011) pp 177-184*
33. Structure and magnetic hysteresis of Gd/Fe multilayers patterned into periodic line patterns, K. Niiyama, Y. Yoshioka, H. Miyagawa, S. Koshiba, T. Suzuki and C.A. Ross, Trans. Mater. Res. Soc. Jpn 37 (2012) 197
34. Domain wall movement in a rhombic Co thin film ring, Chunghee Nam, H.S. Korner, C.A. Ross, Current Appl. Phys. 15 S17-20 (2015), "2014 International Conference on Electronic Materials and Nanotechnology for Green Environment (ENGE 2014)"
35. Spintronic logic circuit and device prototypes utilizing domain walls in ferromagnetic wires with tunnel junction readout, J. A. Currivan-Incorvia; S. Siddiqui; S. Dutta; E. R. Evarts; C. A. Ross; M. A. Baldo, 2015 IEEE International Electron Devices Meeting (IEDM) Pages: 32.6.1 - 32.6.4, DOI: 10.1109/IEDM.2015.7409817 IEEE Conference Publications
36. Monolithic on-chip nonreciprocal photonics based on magneto-optical thin films, Juejun Hu, Xue Yin Sun, Qingyang Du, Mehmet Onbasli, and Caroline. A. Ross, Photonics West (2016) Proc. SPIE 9750, Integrated Optics: Devices, Materials, and Technologies XX, 97500W (2016); doi:10.1117/12.2209658

37. INVITED: A Pathway to Enable Exponential Scaling for the Beyond-CMOS Era, Jian-Ping Wang, Sachin S. Sapatnekar, Chris H. Kim, Paul Crowell, Steve Koester, Supriyo Datta, Kaushik Roy, Anand Raghunathan, X. Sharon Hu, Michael Niemier, Azad Naeemi, Chia-Ling Chien, Caroline Ross, Roland Kawakami, Proceedings of the 54th Annual Design Automation Conference DAC '17, June 18-22, 2017, Austin, TX, USA ACM 978-1-4503-4927-7/17/06. <http://dx.doi.org/10.1145/3061639.3072951>

38. A Logic-in-Memory Design with 3-Terminal Magnetic Tunnel Junction Function Evaluators for Convolutional Neural Networks, Sumit Dutta, Saima A. Siddiqui, Felix Büttner, Luqiao Liu, Caroline A. Ross, and Marc A. Baldo, *2017 IEEE/ACM International Symposium on Nanoscale Architectures (NANOARCH)*. p83-88
doi.ieeecomputersociety.org/10.1109/NANOARCH.2017.8053724

39. Filling in the missing link: monolithic optical isolators on silicon with high performance, broadband operation, and polarization diversity, Juejun Hu, Yan Zhang, Qingyang Du, Chuangtang Wang, Takian Fakhrul, Yifei Zhang, Shuyuan Liu, Longjiang Deng, Claudia Goncalves, Cesar Blanco, Kathleen Richardson, Duanni Huang, Paolo Pintus, John Bowers, Caroline A. Ross, Lei Bi, Proc. SPIE 11289, Photonic and Phononic Properties of Engineered Nanostructures X, 112891L p1-9 (26 February 2020); <https://doi.org/10.1117/12.2553949>

40. Tunable infrared spectral imaging system, Christine Y. Wang, Nolan Peard, Dennis Callahan, Joy C. Perkinson, Neil Patel, John LeBlanc, Qingyang Du, Takian Fakhrul, Caroline A. Ross, Juejun Hu, Proc. SPIE 11537, Electro-Optical and Infrared Systems: Technology and Applications XVII, 1153703 (12 October 2020); <https://doi.org/10.1117/12.2570591>

41. Khoi Phuong Dao, Jorge Marquez Chavez, Kensuke Hayashi, QingYang Du, Juejun Hu, and Caroline A. Ross "Low-thermal-budget monolithic integration of optical isolators for silicon photonics", Proc. SPIE 13369, Integrated Optics: Devices, Materials, and Technologies XXIX, 133690G (19 March 2025); <https://doi.org/10.1117/12.3041954>

Other Major Publications

Invited articles

1. Ross, C.A., "Electrodeposited multilayer thin films," Annual Review of Materials Science, 24 159-188 (1994)

2. Ross, C.A., "Scientific careers in the magnetic recording industry," invited article for FIAP (Forum on Industrial & Applied Physics), APS Newsletter, 3-96.

3. Ross, C.A., R. Ranjan, K. Tang, M. Schabes, R. Sinclair, "Magnetic media: imaging", Encyclopedia of Electrical and Electronic Engineering, ed. J. Webster, 12 1-6 (1999)

4. Ross, C.A., R. Ranjan, K. Tang, M. Schabes, R. Sinclair, "Magnetic media: magnetization reversal", Encyclopedia of Electrical and Electronic Engineering, ed. J. Webster, 12 6-11 (1999)
5. Ross, C.A. and H.I. Smith, "Patterned media: 200 Gb/in² or bust", *Data Storage*, 41-48 (Sept. 1998)
6. Ross, C.A. "Magnetic recording: Patterned media", Encyclopedia of Materials: Science and Technology, 4912-9, ed. R.W. Chantrell (2001)
7. Ross, C.A., "Patterned magnetic media", Annual Review of Materials Research, 31 203-235 (2001)
8. J.Y. Cheng and C.A. Ross, Block copolymer lithography for magnetic device fabrication, chapter for "Block copolymer thin films", ed. T. Russell and O. Tsai (2008)
9. Self-assembled Resists for Nanolithography, C.A. Ross, Microlithography World (May 2007) p4
10. C.A. Ross and J.Y. Cheng, Patterned Magnetic Media made by Self-Assembled Block Copolymer Lithography, MRS Bulletin (Sept. 2008)
11. Self-assembling polymer patterns could shrink lithographic limits, Caroline Ross, Kevin Gotrik, Hong Kyoan Choi, Karim Aissou, Adam Hannon, and Wubin Bai, SPIE Newsroom (2012)

Edited books

11. Baker, S., C.A. Ross, P.H. Townsend, C.A. Volkert and P. Borgesen, eds., "Thin films, stresses and mechanical properties V," MRS Symp. Proc. 356 (1995)
12. Frost, H., M. Parker, C.A. Ross, and E. Holm, eds., "Polycrystalline thin films II: Structure, texture, properties & applications," MRS Symp. Proc. 403 (1996)

Unpublished articles

13. Ross, C.A. "Electromigration in thin metal films", Ph.D. Thesis, Cambridge University, October 1988.

Patents

1. **"Method for forming magneto-optical films for integrated photonic devices"**, XY Sun, MC Onbasli, CA Ross, US Patent 9,829,728, 28 Nov. 2017
2. **"Removable templates for directed self-assembly"**, Karl K. Berggren, Kevin W. Gotrik, Samuel M. Nicaise, Caroline A. Ross, Amir Tavakkoli Kermani Ghariehal U.S. Patent No. 9,478,429 October 25, 2016

3. ***"Low energy magnetic domain wall logic device"***, J. Currivan, C.A. Ross, M. Baldo., US Patent 9,208,845 Dec 8, 2015
4. ***"Standardized topographical arrangements for template regions that orient self-assembly"***, Jae-Byum Chang, Hong Kyoong Choi, Adam Floyd Hannon, Caroline A. Ross, Karl K. Berggren, US Patent 8,996,411, Feb 24, 2015
5. ***"Patterned Non-reciprocal Optical Resonator"***, L.C. Kimerling, C.A. Ross, L. Bi, P. Jiang, J. Hu, D.H. Kim, G. F Dionne, US Patent 8,837,877, Sept. 16 2014
6. ***"On-Chip Miniature Optical Isolator"***, J. Montoya, S. Spector, R. Swint, C.A. Ross, US Patent 8,749,871, June 10 2014
7. ***"Wheatstone bridge magnetoresistive device"***, F. Castano, C. Ross, US Patent 8,415,755, April 9 2013
8. ***"Guided Self-Assembly of Block Copolymer Line Structures for Integrated Circuit Interconnects"***, Karl K. Berggren, Yeon Sik Jung, Caroline A. Ross, and Joel Kwang Wei Yang, US Patent 8,309,278, Nov. 13 2012
9. ***"Formation of close packed sphere arrays in V-shaped grooves"***, V. Chuang, C. Ross, US Patent 8,163,374, April 24 2012
10. ***"Orientation controlled self-assembled nanolithography using a block copolymer"***, Y.S. Jung and C.A. Ross, US Patent 8,147,914, April 3 2012
11. ***"Magnetic material for magneto optical isolator"***, L. Bi, H.S. Kim, G.F. Dionne, C.A. Ross, US Patent 7,995,893, Aug. 9 2011
12. ***"Formation of close packed sphere arrays in V-shaped grooves"***, V. Chuang, C. Ross, US Patent 7,790,045, Sept. 14 2010
13. ***"System and method for performing multi-resolution lithography"***, B. Vogeli, T. Savas, H.I. Smith C.A. Ross, U.S. Patent 7,303,860, Dec. 4 2007
14. ***"Magnetic memory elements using 360° walls"***, C. Ross and F. Castano, U.S. Patent 6,906,369, June 14 2005; British Patent GB2415304, 15 Nov. 2006
15. ***"Magneto-optical isolator material"***, C.A. Ross, T. Tepper, Y. Avrahami, US Patent 7,006,289, Feb. 28 2006
16. ***"Method of making high performance, low noise isotropic magnetic media including a chromium underlayer"***, C.A. Ross and T. Chen, U.S. Patent 6,156,404, Dec. 5 2000
17. ***"Method for preparing a substrate for a magnetic disk"***, C.A. Ross and M. Rosenblum, U.S. Patent 6,143,375, Nov. 7 2000
18. ***"Laser textured magnetic disk comprising NiNb"***, C.A. Ross, M. Rosenblum and D. Treves, U.S. Patent 6,103,404, Aug. 15 2000

19. ***"Method for preparing a substrate for magnetic disk"***, C.A. Ross and M. Rosenblum, U.S. Patent No. 5,980,997, Nov. 9 1999
20. ***"Method of fabricating a textured magnetic storage disk"***, C.A. Ross, U.S. Patent No. 5,871,621, Feb. 16, 1999
21. ***"Method for preparing a substrate for magnetic disk"***, C.A. Ross, U.S. Patent 5,741,560, April 21 1998
22. ***"Method for texturing magnetic media"***, R. Ranjan, K. Huang and C.A. Ross, U.S. Patent No. 5,506,017, April 9, 1996