Andrew G. Kirk

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A. ACADEMIC APPOINTMENTS, RECOGNITION AND SERVICE

2011-present	*Professor* Department of Electrical and Computer Engineering, McGill University
2013/06 to 2018/05	*Chair* Department of Electrical and Computer Engineering, McGill University
2011/09-2013/05	*Interim Dean* Faculty of Engineering, McGill University
2011/06-2011/09	*Chair* Department of Electrical and Computer Engineering, McGill University (service interrupted to take up position as Interim Dean)
2011-2018	*James McGill Professor* (Research Chair) Department of Electrical and Computer Engineering, McGill University
2007-2018	*Director*, McGill Institute for Advanced Materials, McGill University
2006-2011	*Associate Dean for Research and Graduate Education* Faculty of Engineering, McGill University
2002–2010	*Associate Professor* Department of Electrical and Computer Engineering, McGill University
2000-2010	*William Dawson Scholar* (Research Chair) Department of Electrical and Computer Engineering, McGill University
1996–2002	*Assistant Professor* Department of Electrical and Computer Engineering, McGill University,

Visiting positions

2019/09-present	*Visiting Researcher*, Lady Davis Institute of the Jewish General Hospital, Montreal
2018/11-2019/7	*Visiting Researcher* (sabbatical visit), Universidad Politécnica de Valencia
2006 (6 months)	*Visiting Academic* (sabbatical visit), Centre for Ultrahigh Bandwidth Optical Systems, University of Sydney, Australia
2002 (6 months)	*Visiting Researcher* (sabbatical visit), Department of Electronics and Electrical Engineering, University of Glasgow, UK.

Post-doctoral research

1994–1996	*HCM Fellowship* Vrije Universiteit Brussels, Belgium, Department of Applied Physics Design, analysis and packaging of parallel optical interconnects.
1992–1993	*JGF Research Fellow* University of Tokyo, Japan, Department of Mathematical Engineering. Reconfigurable optical interconnects for parallel processing applications.

Education

1989-1992	Ph.D. in Physics, King's College, London. UK
1986-1989	B.Sc. (Hons) in Physics, University of Bristol, UK

Awards, Scholarships and Fellowships

2014 McGill University, Faculty of Engineering, *William and Rhea Seath Award for Engineering Innovation*
2011 McGill University, *James McGill Professor* (7 year appointment, equivalent to CRC Tier I)
2009 Erasmus Mundus *Distinguished Professor Scholarship* (European Commission)
2009 *Bourse d'enseignment en genie* (Québec Government, Ministère de l'Education, du Loisir et du Sport)
2006 NSERC *Synergy Award (*as member of Agile All-Photonic Networks team)
2005 McGill University: *Renewal of William Dawson Scholar* (5 year appointment, equivalent to CRC Tier II)
2004 McGill University: *Principal's Award for Excellence in Teaching at the Associate Professor Level*
2003 McGill University: *Royal Bank Faculty Associate Award for Teaching and Learning*
2004 Department of Electrical and Computer Engineering: *Professor of the Year*
2001 McGill University: *Principal's Award for Excellence in Teaching at the Assistant Professor Level*
2001 Department of Electrical and Computer Engineering: *Outstanding Teacher Award*
2000 McGill University: *Appointment as William Dawson Scholar* (5 year appointment, equivalent to CRC Tier II)
1992 Japanese-German Foundation: *JGF Research Fellowship*

Research Centre and Network Affiliations

- **Centre for Advanced Systems and Technologies** (SYTACOM; FQRNT Research Network and McGill Research Centre):Member (2006-)
- **Centre for Biorecognition and Biosensors** (CBB; FQRNT Research Network and McGill Research Centre): Associate Member (2005-2011)
- **McGill Institute for Advanced Materials** (MIAM): Member (2004-)
- **Agile All-Photonic Networks** (AAPN; NSERC Strategic Research Network): Member (2002-2008)
- **Canadian Institute for Telecommunications Research** (CITR; NSERC Network of Centres of Excellence Program): Member and leader of Micro-optics program (1996-2001).

Professional activities

- **Guest Editor**, *IoP J.Phys Photonics* focus issue on photothermal materials and applications (2023-2024)
- **Guest Editor**, *IoP J.Phys Photonics* focus issue on novel applications of integrated photonics (2019)
- **Member,** Executive Editorial Board for IOP Journal *J.Phys Photonics* and **Chair** of Optical sensors and detection, and photonic sensing' cluster (2018-present)
- **Treasurer**, Canadian Heads of Electrical and Computer Engineering Departments (CHECE) (2016-2018)
- **Member of Board**, *PROMPT* (2013-2015)
- **Elected Member**, *IEEE-Photonics Society Board of Governors* (2012/15)
- **Chair**, *Joseph Fraunhofer Award Committee*, Optical Society of America (OSA), responsible for leading the deliberations for the selection of the 2010 recipient (2009-2011)
- **Member**, *Young Investigator Award Committee*, IEEE Photonics Society (2009-2012)
- **Member**, *Conseil Scientifique*, NanoQuebec (responsible for advising Administrative Committee on Scientific Directions), (2009-12)
- **Member** of *IEEE-Photonics Society Meetings Council*, responsible for developing strategic planning process for conferences (2008-2011)
- **Member** of the Awards Committee of the Optical Society of America (OSA) (2008-2011)
- **Chair** of IEEE-Photonics Society (formerly IEEE-LEOS) *Nanophotonics Technical Area Committee*, responsible for coordination of nanophotonics activities (2008-2010)
- **Chair**, *Symposium on Metamaterials and Plasmonics*, 2008 IEEE-LEOS Annual Meeting (Newport Beach, CA)
- **Chair** of *Nanophotonics Program* for 2007 and 2008 *IEEE-LEOS Annual Meeting* (Lake Buena Vista, FL and Newport Beach, CA)
- **Representative** for the Optical Society of America (OSA) for *IEICE Photonics in Switching* Conference, Sapporo, Japan, 2008

- **Member of Board**, Centre québécois de recherche et de développement de l'aluminium (CQRDA), (2006-2013)
- **Member of Scientific Committee,** Centre for Research and Innovation in Aerospace in Quebec (CRIAQ), (2006-2008)
- **Member** of the Program Committees for Nanophotonics Program IEEE-LEOS Annual Meeting (2007), SPIE Annual Meeting (various programs, 2001-2003), CLEO Europe 2000 (optical interconnects program), SPIE Photonics Fabrication Europe, Canadian MEMS Workshop
- **Referee** for OSA Optics Express, OSA Applied Optics, OSA Optics Letters, OSA JOSA A, IEEE J. Photonics Technology Letters, IEEE J Sel Topics in Quantum Electronics, IEEE J Lightwave Technology, Optics Communications
- **Reviewer** for funding proposals to NSERC, FQRNT, CFI, CRC, Science Foundation Ireland, Singapore Science and Engineering Research Council, Israel Science Foundation, UK EPSRC
- **Consultant** for Nortel Networks, Corning Inc, JDS Uniphase, Texas Instruments
- **Member**, Scientific Committee for the annual '*Science, on tourne'* competition of the Quebec Federation of Cegeps (1997-2006), responsible for preparing the annual team challenge and for adjudicating on the day of the competition.

University responsibilities

- **Deputy Research Integrity Officer,** responsible for the promotion of research integrity at McGill and for handling allegations related to research misconduct (2024-present)
- **Member**, Advisory Committee for the Appointment of Vice-Principal Research and Innovation (2023)
- **President/President-Elect, McGill Association of University Teachers** (May 2020-April 2023)
- **Chair**, Department of Electrical and Computer Engineering (April 2011-September 2011 and July 2013-May 2018). Responsible for departmental of 44 professors, 1100 undergraduate students and over 300 graduate students.
- **Interim Dean**, Faculty of Engineering (October 2011-June 2013). Responsible for operation of one of Canada's leading schools of Engineering, containing 150 professors, 135 support staff, 3000 undergraduate students and 1100 graduate students. Successfully lead campaign for $10M endowment for the Trottier Institute for Sustainability in Engineering and Design; successfully proposed new Department of Bioengineering and led recruitment of first professors of bioengineering.
- **Member**, *Strategic Repositioning Initiative* (2010-2012)
- **Member**, *Working Group on Disclosure of Conflict of Interest*, Vice-Principal Research and International Relations, (2010-11)
- **Member**, *Tenure and Promotion Committee*, Department of Electrical and Computer Engineering, (2010-11)
- **Member**, *Advisory Committee for the Selection of a Provost* (2009)
- **Member**, *Task force on Indirect Costs*, Vice-Principal Research and International Relations, (2008-2010)
- **Member**, *Driving Innovation Steering Committee* (2008-2010)
- **Director**, McGill Institute for Advanced Materials (MIAM) (2007-present). Responsible for coordination and promotion of advanced materials, nanoscience and nanotechnology at McGill. Managing McGill Nanotools Microfabrication facilities and characterization facilities. Lead acquisition of $7.2M in new fabrication and characterization equipment, recruited new staff, obtained $1.6M in NSERC funding (over 6 years) for CREATE training program in integrated sensor systems, with participation of three other Montreal-area universities and several industrial and international partners.
- **Associate Dean for Research and Graduate Education**, Faculty of Engineering (2006-2011): Responsibilities include coordination of major research funding applications in the faculty, management of faculty graduate fellowship program, representation of Faculty on a range of university committees
- **Chair,** Search Committee for Lorne Trottier Chair in Aerospace Engineering (2007-08). Successfully identified inaugural chairholder.
- **Chair**, Search Committee for Nanophotonics/Nanoelectronics faculty position, Department of Electrical and Computer Engineering. Successfully recruited Prof. Zetian Mi (2006). Also member of numerous faculty search committees both within the Electrical and Computer Engineering Department and external to it.
- **Member**, search committee for Professional Associates for University Teaching and Learning Services (2006)
- **Member**, search committee of Director, University Teaching and Learning Services (2005)

- **Member** of Senate Nominating Committee (2004-2005 (stepped down due to sabbatical))
- **Member of Council**, McGill Association of University Teachers: (2002-2005). Organized University Forum on Teaching and Learning in 2005. Nominated as **MAUT President Elect** in 2006, but withdrew due to assumption of position of Associate Dean Research and Graduate Education position in Engineering.
- **Chair,** Engineering Computing Committee, Faculty of Engineering, and Ex-officio member of McGill University Senate Committee on Information Services and Technology: (2004-2005). Implemented major review of support for undergraduate computing use and coordinated improved access to CAD tutorials.
- **Member**, Chair's Advisory Committee, Department of Electrical and Computer Engineering (2004-present)
- **Co-organizer** of the inaugural Faculty of Engineering Symposium on Teaching and Learning (2005)
- **Member** of the Learning Management Software (LMS) evaluation group (Office of the CIO). Responsible for reviewing candidate LMS systems and reporting on perceived strengths and weaknesses (2003-2004)
- **Senator**, McGill University Senate: Twice elected as Faculty Representative: 2002-05, 2021-23
- **Member** of Senate Nominating Committee (2005)
- **Chair**, Management Committee of MIAM Microfabrication Facility: Chair (2002-2006): Responsible for recruitment, planning, outreach and fund raising
- **Member**, Planning Committee, Faculty of Engineering: (2002-2005)
- **Affiliate Member,** Teaching and Learning Services (TLS), McGill University (2003-present)
- **Co-instructor** for Course Design and Teaching Workshop (McGill TLS), offered to instructors (1 week course, 2 times at McGill and 2 times at Simon Fraser University) (2002-2007)
- **Member**, Graduate Committee, Department of Electrical and Computer Engineering, (2003-)
- **Reader**, Scholarships Committee, McGill University (2001-2006)
- **Departmental Secretary**, Department of Electrical and Computer Engineering. Responsible for organization and recording of departmental meetings (1999-2004)
- **Undergraduate Advisor**, Department of Electrical and Computer Engineering, 1996-2002

B. GRADUATE AND UNDERGRADUATE SUPERVISION

(*†Awarded external fellowship, (e.g. NSERC, FQRNT, INO, SPIE, national), ‡Awarded McGill graduate fellowship)*

PhD students in progress

1. Chen, Yiwen, "Multichannel plasmonic PCR", 2023-present
2. Faruque, Md. Omar‡, "Integrated photonic biosensors for accelerated PCR diagnostics", 2023-present
3. Lee, Seung (Co-supervised with Prof. M.Paliouras, Jewish General Hospital), thesis topic: photothermal therapy for cancer treatment, 2021/09-present
4. Oudjedi, Fatma‡, "Nanoparticle-based photothermal therapy for cancer treatment", 2019-present
5. Motavas, Mohammad, "Multiplexed biosensors based on RF detection methods in optical microcavities", 2019-present
6. Gamal, Rania‡, "Integrated cavity ring down spectroscopy system", 2014-present (timeline extended sue to approved leave)

M.Eng (thesis) students in progress

1. Labeau, Marine, "Fluorescence thermometry for plasmonic PCR system", 2024-present
2. Hogue, Vincent‡, "Multichannel ultrafast plasmonic PCR system development", 2023-present
3. Dodoo, Joel‡,"Efficient Multi Mode Interferometer designs for On-Chip Optical Interconnects", 2023-present

PhD students graduated

1. Mohammadyousef, Padideh‡, "Plasmonic thermocycling and amplicon monitoring", 2017-2021, current position: Research Engineer, Nexless Healthcare, Montreal
2. Boroojerdi,Merhnoosh, "Integrated Tunable Silicon-On-Insulator Filters", 2011-2017, current position: Research Engineer, Cienna Inc, Ottawa
3. Soltani, Fatemeh, "Investigation of Low-Power Integrated Optical Switches and Modulators", 2010-2017, current position: Applications Engineer, Cienna Inc, Ottawa
4. Abumazwed, Ahmed†, "Nano-imprint fabrication of plasmonic nanostructures for sensing", 2010-2017, current position: Optical Engineer, OZ Optics, Ottawa
5. Filion-Côté, Sandrine†, "Surface plasmon resonance sensors", co-supervised with M.Tabrizian (Biomedical Engineering), 2011-2016, current position: project manager, CMC Electronics Inc, Montreal
6. Cheema, Imran‡, "Towards optimal whispering gallery mode microcavity sensors: Novel techniques and analyses", 2008-13, current position: Assist. Prof., Lahore University of Management Sciences, Pakistan
7. Zhang, Roy†, "Optical properties of nano-crystalline cellulose", co-supervised with M.Andrews (Chemistry), 2009-13, current position: Scientist at Blue-O-Technology Inc, Vancouver
8. Veerasubramanian, Ventakrishnan, "Applications of side-wall grating resonators", 2008-12, current position: Senior Optical Engineer, Infinera, India
9. Jafari, Amir‡, "Distributed etched diffraction grating demultiplexer", 2006-11, present position: Senior Optical Designer, Huawei, Ottawa
10. Khorshidahmad, Amin, "Photonic crystal demultiplexers and wavelength converters",2006-2011, current position: Research Associate, University Laval
11. Alleyne, Colin, "Enhancing sensitivity for surface plasmon resonance biosensors using periodic structures and spectro-angular image analysis", 2003-2009, current position: Developer, Xtranormal Inc, Montreal
12. Menard, Michael†, "Integrated Fabry-Perot optical space switches", 2003-2009, current position: Professor, UQAM, Montreal
13. Hoa, Xuyen†, "Guided immobilization of bioreceptors on nano-gratings for enhanced surface plasmon resonance biosensing", co-supervised with M.Tabrizian (Biomedical Engineering), 2005-2009, current position: Research Officer at National Research Council Canada
14. Bisaillon, Eric†, "Applications of sub-wavelenegth diffractive optical structures", 2002-2007, current position: Scientist, Government of Canada

15. Bakhtazad, Aref, "Photonic bandgap superprisms", 2001-2006, current position: Research Associate at Nanofabrication Facility, University of Western Ontario
16. Dong, Po, "Techniques for vertical waveguide coupling", 2001-2005, current position: Principal Scientist, Bell Labs
17. Chateauneuf, Marc†, "Scalability of dense free-space optical interconnects", 1997-2003, current position: Research Scientist at Defence Research and Development Canada
18. Lacroix, Frederic†, "Design, analysis and implementation of free-space optical interconnects", 1998-2001, current position: Medical Physicist at Centre hospitalier universitaire de Québec

M.Eng (thesis) students graduated

1. Perrier, Timothy, "Multichannel biosensing using broadband cavity ringdown spectroscopy", 2021-2023, now employed as Assoc. Optics Engineer at Terran Orbital in California, US.
2. Shen, Sihui, "Multichannel ultrafast plasmonic PCR system development", 2020-2022, current position: silicon validation engineer at Synopsys Inc, Montreal, Qc
3. Benchekroun, Mamoun, 2019-2021. Thesis topic: monitoring of ultrafast plasmonic thermocycling; current position: Project Engineering at Open Systems International, Montreal, Qc
4. Uchehara, Gideon, 2016-2018, thesis title "Real Time Label-Free Monitoring of Plasmonic Polymerase Chain Reaction Products", PhD student, University of Victoria
5. Tran, Ngoc Anh Minh, 2016-2017, thesis title "Universal Point of Care Biosensor using Ultrafast Plasmonic Polymerase Chain Reaction", current position: PhD student, McGill
6. Burns, Margaret, 2015-2017, thesis title "Towards the Plasmonic-Photonic Hybridization of High Whispering Gallery Mode Microcavity Sensor and Gold Nanorod", current position: Engineer, l3-Wescam, Ontario
7. Haines, Matthew, 2014-2016, thesis title: "Progress Towards Development of Loop Mirror and Resonant Coupling Modulators in Silicon with Integrated Electro-Optic Polymers ", current position: Optical R&D Engineer, Thalmic Labs, Ontario
8. Najih, Mohammed†, thesis title: "Modeling Coherence Effects on Cavity-Based Spectroscopy", 2013-2017. Current position, PhD student, McGill
9. Wang, Songzhe, 2012-13, current position: Engineer, Nuance Inc, Montreal
10. Boechler, Graham, 2011-13, current position: Engineer, URS, San Francisco
11. Karami, Sara, co-supervised with Odile Liboiron-Ladouceur, 2011-13, current position: Engineer at Iridian Inc, Ontario
12. St-Quentin, Andra†, 2010-12, current position: Optics R&D, MTT Innovation Inc, Vancouver
13. Filion-Côté, Sandrine†, 2009-2011, current position: optical design engineer, Lumenwerx Inc, Montreal
14. Fatehi, Arya, 2009-11, current position: Engineer, Novellis Inc
15. Taslimi, Shahrzad, 2008-10, current position: Optical system designer, Ciena Inc, Ontario
16. Chien, Wein†, co-supervised with M.Tabrizian (Biomedical Engineering), 2006-2008, current position: unknown
17. Bhatnagar, Sameer, 2005-2008, current position: Cegep instructor
18. Khalid, Zeeshan, 2005-2007, current position: Princpal Test Engineer at Broadcom Corporation
19. Marinescu, Cristina†, 2003-2005, current position: Electro-Optics Developer at Ciena
20. Sanyal, Poulomi, 2003-2005, current position: RF Account Manager-Aerospace and Defense, Automotive and Utilities at Rohde & Schwarz
21. Malic, Lidija†, 2003-2005, current position: Research Officer at National Research Council Canada
22. Souleymani, Ali, 2002-2004, current position: Hardware design engineer, SoleNet Inc
23. Hoa, Xuyen†, 2002-2004, current position: Research Officer at National Research Council Canada
24. Prentice, James, 2001-2003, current position: Senior Product Manager, PMC-Sierra
25. Alleyne, Colin, 2001-2003, current position: Developer, Xtranormal Inc, Montreal
26. Varano, Robert†, 2001-2003, current position: Senior Principal Engineer at Reflex Photonics, Montreal

27. Thomas-Dupuis, Frederic†, 2001-2003, current position: Partner at Oliver Wyman, Montreal,
28. Simard, Marc, 2000-2002, current position: unknown
29. Lin, Julianna†, 1999-2001, current position: Design Engineer, Apple Inc, CA
30. Michael, Feras, 1999-2000, current position: Senior Electrical Engineer, TeraDiode Inc
31. Bisaillon, Eric†, 1999-2001, current position: Scientist, Government of Canada
32. Brady, Greg†, 1998-2000, current position: Optical Engineer, KLA Tencor
33. Maj, Tomasz, 1998-2000, current position: Product Line Manager, Finisar
34. Cheng, Fan, 1997-2000, current position: unknown
35. F.-Brosseau, Daniel, 1997-1999, current position: Associate, McKinsey and Company
36. Mathieu, Frederick, 1996-2000, current position: Engineer, ALSTOM
37. Lacroix, Frederic, 1996-1998, current position: Medical Physicist at Centre hospitalier universitaire de Québec

Post-doctoral researchers completed

1. Roche, Philip, 2008-2012,
2. Sun, Guilin†, 2005-2008,
3. Jugessur, Aju, 2004-2006,
4. Jafari, Reza†, 2003-2004,
5. Lugo, Eduardo*, 2001-2004,
6. Belanger, Nicholas*, 2003-2005

Honors Undergraduate Students, 2 semesters)

1. Bucheeri, Khaled 2023
2. Zhu, Yi 2020
3. Grenier, Nicolas 2020
4. Samee, Mohamed 2020
5. Zang, Wen Bo 2016
6. Tranh, Ngoc Anh Minh 2015
7. Najih, Mohamed 2012
8. Xue, Hao Ying 2011
9. Salih Safa, Muhammed 2011
10. Wang, Songzhe 2010
11. Xu, Da-Qian 2009
12. Filion-Cote, Sandrine 2008
13. Khatamian, Yasha 2007
14. Larom, Bar 2006
15. Khalid, Zeeshan 2004
16. Radita, Christian 2003
17. Sharma, Vikas 2002
18. Latif, Salman 2002
19. Kena-Cohen, Stephane 2001
20. Marinescu, Cristina 2001
21. Bres, Camille 2001
22. Brien, Samuel 2001
23. Sabourin, Patrick 2001
24. Xuyen, Hoa 2001
25. Hooshangi, Sara 2000
26. Hsieh, Taulee 1999
27. Dalle, Marwan 1999
28. Varano, Robert 1999
29. Thomas-Dupuis, Frederic 1999
30. Seghal, Puja 1998
31. Girolamo, Cosmo 1998
32. Barakat, Neil 1998
33. Lin, Julianna 1998
34. Chateauneuf, Marc 1996
35. F.-Brosseau, Daniel 1996

B.Eng. Capstone Design Project Teams supervised, 2 semesters

2024: Nicki Esfehani, Alice Munduruca; Gizem Oznalcaci; Madeleine Incutiyayezu

2023-24: Joseph Saliba, Pasha Hakim; Kazuto Kambara; Philippe Sarouphim Hochar,

2023-24: Jessica Li, Joyce Liu, Ann Trinh; Niels Mainville

2023-24: Shiyuan Qiao, Guo Cheng, Zhiheng Zhou, Junbo Wang (co-supervised)

2023-24 Lyon Belyansky, James Kary, Jason Jiang, Eliott Vacher Detournière, Liam Gibbons (Mechanical Engineering)

2022-23: Marine Labeau, Ralph Younan, Shabthana Kandasamy, Vincent Hogue

2022-23 Jianbin Cheng, Tony Zhang, Yushu Zhao

2021-22: Anna Decterov, Sunishtha Koul, Zhuohong Li, Brian Zhang

2020-21: Kenny Huynh, Adrian Dybka

2019-20: Ryan Lo, Zuoya Wang, Lucas Shtychno, Nafisa Islam (Mechanical Engineering)

2017-18: Peter Moutsatsos, James McCallum; Liam Ashworth; Aram Nercessian (Mechanical Engineering)

2017-18: Nasif Alam, Wesley Sun, Hunter Hauswirth,

SURE undergraduate summer students

1. Li, Zhuohong 2022
2. Licoppe, Aidan 2022
3. Tchirnov, Rachel 2020
4. Kirby, Tai 2020
5. Deng, David 2020
6. Yun, Jasper 2020
7. Benchekroun, Mamoun 2018
8. Shen, Sihui 2018
9. Fulleringer, Alexander 2017
10. Savoie, Mathieu 2017
11. Tang, Vera 2017
12. Khan, Fazal Mahmood 2017
13. Mian, Muhammad Anees Rehman 2017
14. Lemes Arai, Juliana 2016
15. Bozzo, Sara Anne 2016
16. Fang, Szu-Chieh 2016
17. Guenin, Laurent 2016
18. Quinn, Peter 2016
19. Gong, Yanhao 2016
20. Shen, Chen 2015
21. Zang, Wen Bo 2015
22. Wolfe, Sean 2015
23. Tranh, Ngoc Anh Minh 2014
24. Shen, Lulan 2014
25. Wang, Hong Yi 2014
26. Ben Zvi, Libby 2013
27. Robinson, Warren 2013
28. Bare, Milena 2013
29. Dupressoir, Patrick 2012
30. Fakih, Ibrahim 2011
31. Dhane, Sina 2011
32. Hemsworth, Nick 2011
33. Wong, Jeremy 2010
34. Hamza, Rias 2010
35. Waldman, Eric 20

C. FUNDING HISTORY

Operating grants

Investigators (PI: Principal Investigator)	Project	Amount/year , % available to candidate)	Years of tenure
A.Kirk (PI)	Mitacs, Accelerate, Design and Implementation of an External-Cavity Laser (ECL) as a Tunable Coherent Source for Optical Communication and Sensing Applications Using Hybrid Integration, partner organisation: Les Systèmes Fonex Data Inc.	$30,000 (100%)	2023-2025
A.Kirk (PI), M.Trifiro (Co-PI), M.Paliaouras (Co-PI)	NSERC Alliance Grant, Plasmonic PCR for point of care diagnostics, supporting organisations Nexless Healthcare and Trilogix Inc	$171,962 (50%)	2023-2025
A.Kirk (Co-PI), M.Trifiro (Co-PI), M.Paliaouras (Co-PI)	*PCR Plasmonique* MEDTEQ Impact Program, with co-funding from Nexless Inc and Trilogix Inc	$171,962 (50%)	2023-2025
A.Kirk (Co-PI), M.Trifiro (Co-PI), M.Paliaouras (Co-PI)	*Plasmonic PCR: Rapid Point-of-Care COVID-19 Diagnostic Platform.* CIHR Operating Grant: COVID-19 - Diagnostics	$358,850 (30%)	2020-22
Kirk, A.G. (PI)	*Integrated multiplexed optical biosensors for rapid diagnostics* NSERC Discovery Grant	$33000 (100%)	2020-2025
B.Brenner (Co-PI), N.Kronfli (Co-PI), A.Kirk (Co-Investigator), M.Paliouras (Co-Investigator)	*Design of a Rapid Point-of-Care PCR device for the diagnosis and management of HIV, HCV and other infectious diseases for key vulnerable populations in real-world settings* McGill MI4 Seed Grant	$150,000 (30%)	2019-20
Kirk, AG (PI), Trifiro M; Paliouras, M; Yargeau, V.	*High speed, portable PCR system for rapid and in situ water quality testing* Trottier Institute for Sustainability in Engineering and Design Planetary Health Seed Funding Program	$75,000 (40%)	2018-20
Trifiro, M (PI), Kirk, AG (Co-PI), Paliouras, M and Roche, P	*Plasmonic PCR: Rapid Diagnostics through Plasmonics* Genome Quebec, Disruptive Innovation in Genomics Competition	$125,000 (30%)	2016-18
Kirk, A.G. (PI)	*Integrated photonic biosensors for time domain measurements* NSERC Discovery Grant	$47,000 (100%)	2015-2020
Tabrizian, M. (PI), Kirk, A.G., Faucher, S.	*Integrated on-chip microfulidic system with surface plasmon resonance biosensor for time-effective detection of legionella pneumophila in contaminated water* NSERC Strategic Grant	$142,000 (33%)	2014-2017
Mi, Z. (principal), D. V. Plant, and A. G. Kirk.	*3-Dimensionally integrated nanophotonic circuits on Si for terahertz-speed chip-level optical*	$136,000 (33%)	2012-2015

	communications NSERC, Strategic Grant,.		
Kirk, A.G. (PI)	*Nanophotonic Engineering for Telecommunications and Biomedicine* McGill University, James McGill Chair	15,000 (100%)	2011-2018
Tabrizian, M.T. (PI); Kirk, A.G.; Juncker, D; Veres, T.	*Towards a Portable and Fully Automated SPR-Based Digital Microfluidics Array Platform Integrating Diffractive Optical Elements for Genomics and Proteomics* Genome Quebec	132,500 (25%)	2010-2013
Kirk, A.G. (PI) and Andrews, M	*Integrated polymer electro-optic switches* NanoQuebec	66,667 (50%)	2010-2012
Andrews, M (PI); Kirk, AG and 2 others	*Encres à base de nano cellulose cristalline pour une sécurité et une couleur* FQRNT Arbora-Nano program	75,000 (25%)	2010-2013
Kirk, A.G. (PI) and 9 others	*NSERC CREATE training program in Integrated Sensor Systems* NSERC CREATE program	300,000 (10%)	2010-2016
Kirk A.G. (PI); Mi, Z and Plant, D.V.	*Direct integration of microtube lasers on silicon* NSERC Strategic Research Program	136,000 (30%)	2010-2013
Kirk, A.G. (PI); Charette, P; Tabrizian, M; Beauvais, J.	*Senseurs à résonance de plasmon de surface à sensibilité accrue* FQRNT Team Grant	43,200 (33%)	2008-2010
Kirk, A.G. (PI); Plant, D.V., Aimez, V.	*Heterogeneous integration processes for planar optoelectronics* NSERC Strategic Research Program	99,900 (33%)	2008-2010
Tabrizian, M.T. (PI); Kirk, A.G.; Juncker, D; Charette, P.; Veres, T.	*Integrated Proteomics Platforms for High-Throughput Biomarker Discovery and Validation* Genome Canada and Genome Quebec, Technology Development Program	816,704 (20%)	2008-2010
Kirk A.G. (PI)	*Nanoplasmonic Optical Biosensors* NSERC Discovery Grant	36,000 (100%)	2007-2015
Kirk, A.G. (PI)	*Integrated Fabry-Perot Optical Space Switch* NSERC Idea to Innovation program	94,035 (100%)	2007
Kirk, A.G. (PI) and 9 others	*Microfabrication Facilities Access* NSERC Major Resource Access	60,000 (10%)	2006
Colman, D.R. (PI); Kirk A.G., and 9 others	*Engineering Repair of the Central Nervous System* CIHR (Innovative Approaches to Health Research	295,000 (5%)	2005-2007
Tabrizian, M. (PI) ; Kirk, A.G. ; Verres, T.	*Novel surface plasmon resonance biointerface for time-effective analysis of sepsis biomarkers* NSERC CRD	99,300 (33%)	2005-2007
Kirk, A.G. (PI)	*William Dawson Scholar Research Grant (renewal)* McGill University	15,000 (100%)	2005-2010

Kirk, A.G.(PI) and 4 others	*Fully integrated grating-based surface plasmon resonance sensors* FQRNT Team Grant	76,550 (30%)	2005-2007
Kirk, A.G. (PI)	*Integrated micro-optical systems for future optical networks* NSERC Discovery Grant	35,850 (100%)	2004-2006
Kirk, A.G. (PI)	*Integrated planar waveguide structures* NSERC eMPOWR program	20,000 (100%)	2005
Kirk, A.G. (PI)	*Improved optical systems for particle Measurements* (NSERC CRD	42,778 (100%)	2005
Kirk, A.G. (PI)	*Novel technique for efficient nonlinear optical frequency conversion* NSERC Idea to Innovation program	79,535 (100%)	2004
Ward, B. (PI); Kirk, A.G. and 3 others	*SELDI-ToF MS in blood-borne protozoan* infections: novel diagnostic approach CIHR	98,000 (10%)	2004-2005
Plant, D.V. (PI); Kirk A.G. and 12 others	*Agile All-Photonic Networks* NSERC Research Networks program	1,700,000 (8%)	2003-2007
Beauvais, J. (PI); Kirk A.G. and 4 others	*High resolution lithography for the fabrication of photonic devices* PROMPT (VRQ)	125,000 (12%)	2003-2004
Kirk, A.G. (PI)	*3-D integrated micro-optics* NSERC eMPOWR program	20,000 (100%)	2003
Grutter, P. (PI); Kirk, A.G. and 5, others	*Micromachining facilities access* NSERC Major Facilities Access	130,000 (15%)	2003-2005
Kirk, A.G. (PI) and Plant, D.V.	*Tunable photonic bandgap devices* NanoQuebec (VRQ)	60,000 (50%)	2002-2003
Plant, D.V. (PI); Kirk, A.G. (and 3others	*Optical CDMA for local access* FQRNT (Team Grant)	70,000 (25%)	2002-2004
Kirk, A.G. (PI)	*William Dawson Scholar Research Grant* McGill University	15,000 (100%)	2000-2004
Kirk, A.G. (PI)	*Multi-drop free-space optical interconnects* NSERC Research Grant	33,160 (100%)	1999-2002
Kirk, A.G (PI),	*Micro-optics for wavelength routing* CIPI (NSERC NCE program)	59,000 (100%)	1999-2002
Kirk, A.G. (PI)	*Optical technology* CITR (NSERC NCE program)	118,000 (100%)	1998-2001
Plant, D.P. (PI); Kirk, A.G.	*VLSI photonics* BAE Systems (Research contract)	502,000 (50%)	1998-2001
Kirk, A.G., (PI)	*Optical Technology* CITR (NSERC NCE program)	135,000 (100%)	1998-1999
Plant, D.P. (PI); Kirk, A.G.	*Free space optical interconnect ASIC development* Nortel Advanced Technologies (Research contract)	208,000 (50%)	1998- 1999

Kirk, A.G. (PI)	*Robust micro-optical components for free*-space digital optical systems FCAR New Researcher grant	14,000 (100%)	1997-1999
Plant, D. (PI); Kirk, A.G.	*The optomechanics of free-space optical interconnects.* NSERC IOR	25,000 (50%)	1997-1998
Kirk, A.G. (PI)	*Micro-optics for free-space digital optical systems* NSERC Research Grant	24,000 (100%)	1996-1998
Kirk, A.G. (PI)	*Start-up funding* McGill University Dept. Electrical and Computer Engineering and Faculty of Engineering	30,000 (100%)	1996

Infrastructure and equipment Grants

Investigators	**Project**	**Amount/year (% available to candidate)**	**Years of tenure**
Plant, D.V (PI), Kirk, A.G., and four others	*All-Band Device Testbed* (NSERC Research Tools and Instruments	150,000 (50%)	2014
Mi, Z. (PI), Kirk, A.G. and 8 others	*An RF Plasma Nitrogen Source for the Development of Nanoscale Nitride Semiconductors for Phosphor-Free Solid State Lighting (Solar Fuels (and Chip-Level Optical Communications* (NSERC Research Tools and Instruments	57,839 (10%)	2013
Kirk, A.G. (PI) and 9 others	*Electron Beam Deposition System for Multi-User Nanofabrication Facility* (NSERC Research Tools and Instruments	148,200 (10%)	2011
Kirk, A.G (PI).; Charette, P; Tabrizian, M; Beauvais, J.	*Senseurs à résonance de plasmon de surface à sensibilité accrue (* Equipment funding component)	46,900 (50%)	2008
Plant, D.V. (PI); Kirk, A.G. and 8 others	*IFLOWS* MDEIE (Quebec)/McGill infrastructure program	2,979,000 (50%)	2007
Kirk, A.G. (co-PI); Vinals, co-PI), J and 8 others	Tools for Functional Materials MDEIE (Quebec)/McGill infrastructure program	7,200,000 (25%)	2007
Plant,D, (PI) Kirk, A.G., Chen, L.	*Burst Mode Technologies for High Bit Rate All-Photonic Access Networks* NSERC Research tools and instruments	36,122 (33%)	2005
Kirk, A.G. (PI), Plant,D, Chen, L.	*Photonic nanopositioning equipment* NSERC Research Tools and Instruments	63,640 (33%)	2004
Chen, L. (PI), Kirk, A.G., Plant,D,	*Components for ultrahigh bandwidth transmission experiments and ultrafast photonics research* NSERC Research Tools and Instruments	33,616 (33%)	2003
Chen, L. (PI), Kirk, A.G., Plant,D	*10 Gb/s lightwave receiver for dynamic recirculating loop transmission experiments* NSERC Research Tools and Instruments	70,068 (33%)	2002

Chen, L. (PI), Kirk, A.G., Plant,D	*Wavelength-division-multiplexing transmitters and components for lightwave systems research* NSERC Research Tools and Instruments	23,461 (33%)	2001
Grutter, P. (PI), Kirk, A.G. and 5 others	*Tools for Nanoscience and Technology* Canadian Foundation for Innovation	9,396,172 (10%)	2001
Blostein, M.L (PI), Kirk, A.G. and 8 others	*Experimental facilities for research in multimedia communications systems* Canadian Foundation for Innovation	1,824,355 (10%)	2001
Kirk, A.G. (PI), Kordoc, K.	*The impact of high capacity parallel optical interconnects on system design and performance* CFI New Opportunities Program	321,068 (50%)	2000
Kirk, A.G. (PI)	*Micro-optics for free-space digital optical systems* McGill University (Faculty of Graduate Studies (Equipment grant	15,000 (100%)	1998
Kirk, A.G. (PI)	*Robust micro-optical components for free-space digital optical systems* FCAR New Researcher Equipment grant	15,000 (100%)	1998

Grants for Teaching (Infrastructure and operations)

Investigator	Purpose	Amont per year	Years of tenure
Kirk, A.G.	*Bourse d'enseignment en genie* (Québec Government (MELS)	25,000, (stipend and teaching support)	2009-2013
Kirk, A.G.	*Enhancement of the undergraduate Optical Communications teaching laboratory,* Québec Government (MELS)	$214,000 (equipment)	2000
Kirk, A.G.	*Creation of an undergraduate Optical Communications teaching laboratory,* Québec Government (MELS)	$273,000 (equipment)	1999

D. RESEARCH CONTRIBUTIONS IN PAST SIX YEARS

Full references for citations are given in 'Publications'. Authors whose names are underlined were under my supervision (or co-supervision) at the time the research was performed.

A: Ultrafast plasmonic thermocycler for polymerase chain reaction

The polymerase chain reaction (PCR) is used in thousands of laboratories around the world to amplify nucleic acid sequences for applications including DNA sequencing, gene analysis and identification of infectious diseases, and is now well-known as the most accurate method for detecting the SARS-Cov-2 virus. The amplification process requires the sample to be repeatedly heated and cooled in a cycle from 51 °C, 91 °C and 72 °C. The time required for this cycle represents a significant bottleneck. In Roche et al 2017 [J10] we show that very rapid and accurate thermocycling (30 cycles in 600 seconds) can be achieved by laser heating of gold nanoparticles that are contained within the sample vessel followed by forced air cooling. This is the fastest rate reported to date for practical 20 mL sample sizes this and paper has been cited 22 times to date by other researchers, indicating the significant interest that the results hold. This heating technique was originally conceived by the PI and P.Roche in 2012 when P.Roche was under the direction of the PI and demonstrated with partners in the Jewish General Hospital (M.Trifiro, and M.Paliouras, who provided biological and medical expertise) and initial results were published in P. J. R. Roche et al, *Analyst*, **137** (19), pp 4475–4481, 2012. In the 2017 paper we also show that the same plasmonic heating mechanism can be used to directly extract the DNA from bacterial cells prior to amplification, opening the way to a 'single pot' PCR system.

On the basis of this research we were invited to attend an invitation-only meeting by Health Canada to describe the potential impact on antimicrobial resistance []. The team was also awarded a $717,700 grant by the CIHR to adapt this technology to the amplification of SARS-Cov2 RNA (and hence the diagnosis of Covid-19) and deliver a prototype suitable for end-users. In collaboration with industrial partners we have now developed a 4-channel user-ready PCR system that outperforms other solutions in terms of performance, delivering PCR results in 7-15 minutes and RT-PCR results in 15-25 minutes.

A US and Canadian patent has been granted for the intellectual technology that has arisen from this research [P1] and it is currently being extended to other countries. McGill has licensed the patent to our industrial partners and they are currently considering commercial production.

B: Direct detection of low copy number DNA via ultraviolet quantification

All quantitative PCR (qPCR) machines require a mechanism to detect the concentration of DNA as thermocycling proceeds. This allows the original concentration of the target DNA to be inferred, providing invaluable diagnostic information. Commercial qPCR systems employ fluorescent detection, using either DNA intercalating dyes or dye molecules that bind specifically to amplicons or primers. This approach works well in most cases, but on some occasions can lead to errors due to photobleaching. The fluorescent reagents also represent an additional cost that can add up to $100,000's over the lifetime of an instrument. Because our plasmonic PCR system allows for a direct optical path through the PCR tube (which is typically not possible in thermocyclers that use Peltier-effect block heaters) we investigated the quantification of DNA via measurement of the ultraviolet transmittance of the reaction mixture. The DNA precursors (deoxyribonucleotide triphosphate or dNTP molecules) have a higher absorption at 260 nm than bound double-stranded DNA (due to the availability of electrons in the pyrimidine rings) and so as DNA amplification proceeds the UV transmittance increases. By undertaking careful experimental design and measurements, and in conjunction with the plasmonic PCR system described previously, we have demonstrated that it possible to detect starting copy numbers of less than 3 DNA molecules, placing this method on par with fluorescence measurements in terms of sensitivity, and without requiring any additional reagents. The results were recently published in a high impact factor journal [J1] and accepted for presentation at academic conferences [C7]. We have also developed a complete model for the amplification process that permits the UV transmission to be predicted as the reaction proceeds and which provides a very good match with the experimental results. This model has already been presented at a competitive academic conference [C1] and is currently in preparation for submission to an academic journal. Patent protection has been applied for (as a continuation to [P1]).

C: Real-time measurement of complex refractive index using surface plasmon resonance sensing

Surface plasmon resonance (SPR) is a widely used technique for sensing molecules that are absorbed onto a noble metal surface. Most SPR systems measure the shift in the SPR resonance peak (in either angle or wavelength) and use this to infer the change in the effect refractive index at the surface. However, the SPR peak also changes in

response to changes in the optical absorption of the bound layer, and so can be used to measure the complex refractive index. While other researchers had undertaken this previously, they were not able to extract accurate complex refractive index values in real time. In [J12] we employed the very successful projection method that we had first published in Alleyne et al, *Optics Express* **16** (24) pp 493-503, 2008 to provide a very high accuracy measurement of the real and imaginary parts of the refractive index in real time. We then applied this to measure the growth and subsequent removal of a bacterial biofilm in real time, providing an important insight into growth rates and also the efficacy of cleaning techniques and published in [J11]. This paper has subsequently been cited 10 times by other researchers. This research project was undertaken as a collaboration between colleagues in McGill Biomedical Engineering (M.Tabrizian and F.Malaine) who provided expertise into surface treatment and bacterial growth conditions, while my group provided expertise in optical systems and signal processing.

D: Improved signal processing for localized surface plasmon resonance biosensors

Localised surface plasmon resonance (LSPR), which makes use of the plasmonic response of metallic nanoparticles, permits researchers to probe closely bound molecules. In contrast to SPR, LSPR spectra are often broader and noisier, due to the dimensions of the nanoparticles and size variations that arise during fabrication. This can limit their sensitivity. In a series of papers we have pioneered new signal processing techniques which allow more information to be extracted than was previously possible. In [J13]] we extended our projection method to LSPR for the first time and showed that it can provide a better signal to noise ratio and precision than other techniques. This approach has now been adopted by several other researchers. In [J9] we focused on nanorods that have resonances at two wavelengths. While other researchers had previously demonstrated that by interrogating in two spectral bands it is possible to independently extract information about both the refractive index of the absorbed layer and also its depth, we showed that much greater precision can be achieved by applying maximum likelihood estimation (MLE) techniques to the data. Finally in [J8] we considered multiply-resonant crescent-shaped nanoparticles and showed that the results of the MLE method can be improved even further by adopting a non-linear response model rather than the previously employed linear response model. This work was a collaboration between my group and that of T.Tanaka at the Riken Institute, Japan, who contributed to the fabrication of the nanostructures, while we undertook experimental measurements, signal processing techniques and analysis of the data.

E: Biosensing via broad-band phase shift cavity ring-down spectroscopy of optical microcavities

Phase shift cavity ring-down spectroscopy (PS-CRDS) is a well-known technique for the characterization of gases using large optical cavities. In 2013 (Cheema et al, *Optics Express*, **21** (7), pp 8724-8735) we showed for the first time that the method could be applied to biosensing in optical microcavities and this work has since been cited over 40 times. We have subsequently extended this work to develop the first model to predict the PS-CRDS response to partially coherent light, and the results were presented at a conference [C11]. These results open the path to the deployment of highly sensitive microcavity-based optical sensors that do not require a tunable laser, and research on this topic is ongoing.

E. COMPLETE LIST OF PUBLICATIONS

1. Articles in refereed journals

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J2. F. Oudjedi and A. G. Kirk, "Near-Infrared Nanoparticle-Mediated Photothermal Cancer Therapy: A Comprehensive Review of Advances in Monitoring and Controlling Thermal Effects for Effective Cancer Treatment", *Nano Select*, https://doi.org/10.1002/nano.202400107, 24 pages , September 2024

J3. I. Brukner, M. Paliouras, M. Trifiro, M.Bohbot, D.Shamir, A. G. Kirk, 'Assessing different PCR master mixes for ultrarapid DNA amplification: important analytical parameters', Diagnostics, 14 (5), 477, 2024.

J4. F. Oudjedi, S. S. Lee, M. Paliouras, M. Trifiro, and A. G. Kirk, "Enhancing in vitro photothermal therapy using plasmonic gold nanorod decorated multiwalled carbon nanotubes," Biomedical Optics Express, vol. 14, no. 12, pp. 6629-6643, Dec 2023, doi: 10.1364/boe.504746.

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J9. A.Abumazwed, W.Kubo, T.Tanaka, A.G.Kirk, 'Improved self-referenced biosensing with emphasis on IP 1multiple-resonance nanorod sensors', *OSA Optics Express*, **25** (20),pp 24803-24815, 2017

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J17. S. Filion-Côté, P. J. R. Roche, A. M. Foudeh, M. Tabrizian and A.G.Kirk, 'Design and analysis of a spectro-angular surface plasmon resonance biosensor operating in the visible spectrum', *Rev. Sci. Instrum*. **85**, 093107, 2014

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J106. **A G Kirk**, S Jamieson, H Imam and T J Hall, 'Experimental implementation of an optoelectronic matrix-matrix multiplier which incorporates multiple imaging', *Optical Computing and Processing* **2** (4) pp 293-294, 1992.

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J108. **A G Kirk** and T J Hall, 'Design of computer generated holograms by simulated annealing: observation of meta-stable states', *Journal of Modern Optics* **39** (12) pp 2531-2539, 1992.

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J110. **A G Kirk**, A K Powell, T J Hall, 'A generalisation of the error diffusion method for binary computer generated hologram design', *Optics Communications* **92** pp 12-18, 1992.

2. Book Chapters

B1. A.G.Kirk, 'Plasmonic Nanostructures for Sensing' in *Photonic Materials (Ed. P. Chakraborty), Encyclopedia of Materials: Electronics* series, Elsevier, 17 pages, March 2022, (https://www.sciencedirect.com/science/article/pii/B9780128197288000115)

B2. A.G.Kirk , 'Free-space optical interconnects', in *Optical Interconnects: The Silicon Approach*, Pavesi, Lorenzo; Guillot, Gérard (Eds.), Springer Series in Optical Sciences, Springer (Berlin), 2006

B3. **A G Kirk** and T J Hall, 'Interconnects within optically thin elements', Chapter in *Perspectives for Parallel Optical Interconnects,* Ph Lalanne, P Chavel (Eds.), Springer-Verlag, Berlin, 1991.

B4. **A G Kirk**, A K Powell, T J Hall 'A new approach to the design of quantised computer generated holograms', Chapter in *Optical Information Technology*, S D Smith and R F Neale (Eds.), Springer-Verlag, Berlin, 1991.

3. Invited talks or lectures at meetings without conference proceedings

I1. A.Kirk, 'Rapid DNA amplification: Recent approaches to accelerating nucleic acid diagnostic methods', Invited Presentation, Photons Canada Workshop on Biophotonics and Applications, August 2023

I2. A.Kirk**, '**Rapid DNA amplification: Recent approaches to accelerating nucleic acid diagnostic methods', Invited Keynote presentation, International Conference on Biomedical Engineering and Systems (ICBES'23), London, UK 2023

I3. A.Kirk, 'Optical nanostructures for POC medical diagnostics', National Autonomous University of Mexico (UNAM), Nov 2022 (delivered via Zoom)

I4. A.G.Kirk, 'Photonic biosensing: opportunities and challenges', Department of Chemical Engineering and Materials Science, Stevens Institute, New Jersey, USA, November 2019

I5. A.G.Kirk, 'Photonic biosensing: opportunities and challenges', OSA and SPIE Student Chapter Seminar Series, University of Toronto, October 2019

I6. A.G.Kirk, 'Plasmonics for biosensing and medical diagnostics', Department of Chemistry, Universidad Politécnica de Valencia, Spain, June 2019

I7. A.G.Kirk, 'Photonic biosensing: opportunities and challenges', Nanophotonics centre, Catalan Institute of Nanoscience and Nanotechnology, Spain, June 2019

I8. A.G.Kirk, 'Photonic biosensing: opportunities and challenges', Nanobiotechnology for Diagnostics (Nb4D) group, Institute for Advanced Chemistry of Catalonia, Barcelona, Spain, May 2019

I9. A.G.Kirk, 'Photonic biosensing: opportunities and challenges', Nanophotonics centre, Universidad Politécnica de Valencia, Spain, September 2017

I10. A.G.Kirk, 'Integrated resonant photonic structures for biosensing and telecommunications', University of Toronto, Department of Electrical and Computer Engineering, August 2014

I11. A.G.Kirk, 'Nanophotonics for sensing', Neuroengineering Training Program, McGill University, October 2013

I12. A.G.Kirk, 'Nanophotonics for sensing', Integrated Sensor Systems Training Program, McGill University, September 2013

I13. A.G.Kirk, 'Photonic resonant microsensors', Riken Institute, Tokyo, April 2012

I14. A.G.Kirk, 'Resonant structures for integrated photonic sensors', Boston University, April 2012

I15. A.G.Kirk, 'The cloak of invisibility', *Classes without Quizzes (*public lecture), McGill University, October 2010

I16. A.G.Kirk**,** 'Biocapteur spectro-angulaire basé sur la résonance plasmonique de surface', *Association Francophone pour le Savoir*, Montreal, 2010

I17. A.G.Kirk **, '**Integrated photonic systems for applications in telecommunications and biosensing', seminar, University of St Andrews, UK, July 2010

I18. A.G.Kirk **, '**Integrated photonic systems for applications in telecommunications and biosensing', seminar, Ghent University, Belgium, July 2010

I19. A.G.Kirk **, '**Integrated photonic systems for applications in telecommunications and biosensing', seminar, Vrije Universiteit Brussel, Brussel , Belgium, July 2010

I20. A.G.Kirk, 'Integrated Photonic Biosensors', 2 hours of lectures at the *Erasmus Mundus Master in Photonics* summer program, Heriot-Watt University, Edinburgh UK), June 2010.

I21. A.G.Kirk, 'Nanophotonic integration strategies', 22nd Entretiens Jacques Cartier, Lyons and Grenoble (France), December 2009).

I22. A.G.Kirk, 'Integrated and Micro-optics', 8 hours of lectures at the *IIM UNAM Materials Science and Engineering summer course 2009* (Mexico City, Mexico), June 2009.

I23. A.G.Kirk, 'Nanophotonics', The Cutting Edge Lecture Series: Royal Society Lectures in Science (public lecture), McGill University, December 2008

I24. A.G.Kirk, 'The cloak of invisibility', *Classes without Quizzes (*public lecture), McGill University, October 2008

I25. A.G.Kirk, 'Free-space principles in integrated nanophotonics', seminar, Kyoto University, August 2008

I26. A.G.Kirk, 'Free-space principles in integrated nanophotonics', seminar, University of Tokyo, August 2008

I27. A.G.Kirk, 'Dispersion engineering in photonic and plasmonic crystals', seminar, University of Toronto, November 2007

I28. A.G.Kirk**,** 'Metamaterials and Negative Refraction: Is Harry Potter's Invisibility Coat Possible?', *Sigma Xi lecture series*, McGill University, October 2007

I29. A.G.Kirk, 'The integration of photonic nanostructures into surface plasmon resonance optical biosensors', in *Nanobiotechnology for analysis and energy conversion*, 19th Entretiens Jacques Cartier, Lyons and Grenoble (France), December 2006.

I30. A.G.Kirk, 'Optical Engineering: Learning by Design', in *Creative Teaching Methods for Photonics*, IEEE-LEOS Annual Meeting, Montreal, October 2006

I31. A.G.Kirk, 'Engineering wavefront dispersion in planar waveguides with photonic crystals', seminar, Cornell University, August 2006

I32. A.G.Kirk, 'Applications of optically resonant structures in telecommunications and bio-sensing', seminar, Swinburne University, January 2006

I33. A.G.Kirk, 'Applications of optically resonant structures in telecommunications and bio-sensing', seminar, Macquarie University, January 2006

I34. A.G.Kirk, 'Applications of optically resonant structures in telecommunications and bio-sensing', seminar, University of Sydney, January 2006

I35. A.G.Kirk, 'Dispersion Engineering', seminar, University of Toronto, October 2005

I36. A.G.Kirk, 'Free-space optics', 3 hours of lectures at the *Photonics Winter School on Silicon Photonics*, University of Trento (Italy), February 2005.

I37. A.G.Kirk, 'Free-space optical interconnect design', seminar, St Andrews University, November 2002

I38. A.G.Kirk, 'Free-space optical interconnect design', seminar, University of Glasgow, October 2002

I39. A.G.Kirk, 'Progress in Packaging Techniques for Free-Space Micro-optical systems', IEEE-LEOS workshop on integrated optics and passive micro-optics, Brugge, Belgium, 1998.

I40. A.G.Kirk, 'Parallel processing system with reconfigurable holographic interconnections', Japan Optics Society Spring Meeting, Nagaoka, Japan, 1993

4. Invited posters

IP 1. M.Trifiro, M. Paliouras, S.Trifiro and A.G.Kirk, 'Ultrafast, high throughput digital PCR platform: Redefining Point of Care diagnostics', Health Canada workshop on Antimicrobial Resistance, Ottawa, May 2016

5. Contributions to Conference Proceedings

C1. Motavas, M. and **Kirk, A** , 'Maximising sensitivity of absorption-based ring resonator biosensors to changes in analyte absorption', 2024 IEEE Photonics Conference (IPC),Rome, Italy, November 2024.

C2. Motavas, M., Perrier T, Gamal, R. and **Kirk, A**, 'Evaluation of requirements for phase-shift cavity ring-down spectroscopy biosensing using integrated microring resonators', IEEE IPC Conference, Orlando, USA, November 2023

C3. Oudjedi, F., Lee, S.S., Paliouras,M, Trifiro,M., Wachsmann-Hogiu, S., Kirk, A. 'Gold Nanorod-Decorated Carbon Nanotubes for Cellular-Level Raman Thermometry', Japan Society of Applied Physics Annul Meeting, Kumamoto, Japan, September 2023

C4. Shen, S and **Kirk, A**. 'Investigation of Heating Process and Ultra-violet Quantification of Plasmonic Polymerase Chain Reaction (PCR) System for Point of Care Applications', 6th Asia Conference on Energy and Environment Engineering (ACEEE 2023), Chengdu, China, June 2023

C5. Oudjedi, F; Lee, S; Paliouras, M; Trifiro, M; **Kirk, A,** 'Gold nanorod-decorated multiwalled carbon nanotubes for near-infrared photothermal therapy', SPIE BIOS 2022, United States, San Francisco, Volume 11978, Plasmonics in Biology and Medicine XIX; 1197809, SPIE, January 2022

C6. P.Mohammadyousef, M.Paliouras, M.Trifiro, A.G.Kirk, 'Model-Based Analysis for Real-Time Label-Free Ultraviolet Quantification of Ultrafast Plasmonic Polymerase Chain Reaction', *IEEE Conference on Engineering in Medicine and Biology (EMBC) 2020*, MoAT6.395, 2020

C7. P.Mohammadyousef, M.Paliouras, M.Trifiro, A.G.Kirk**,** 'A Novel Portable Fluorophore-free Photonic qPCR for Point-of-Care Applications, OSA Biophotonics Congress: Biomedical Optics, April 2020

C8. P.Mohammadyousef, G.Uchehara, M.Paliouras, M.Trifiro, A.G.Kirk, 'Ultrafast VCSEL-based Plasmonic Polymerase Chain Reaction with Real-time Label-free Amplicon Detection for Point-Of-Care Diagnostics', *SPIE BIOS 2020,* San Francisco, USA, February 2020

C9. P.Mohammadyousef, M.Paliouras, M.Trifiro, A.G.Kirk, 'Ultrafast plasmonic and real-time label-free polymerase chain reaction', *SPIE BIOS 2020,* San Francisco, USA, February 2020

C10. G. Uchehara, **A.G. Kirk**, M.Trifiro, M.Paliouras, P.Mohammadyousef, 'Real time label-free monitoring of plasmonic polymerase chain reaction products', Proc. SPIE 10969, Nano-, Bio-, Info-Tech Sensors and 3D Systems III, 109690A, March 2019

C11. **A.G. Kirk**, R. Gamal, M. Najih, ´Do you need a tunable laser for resonant cavity optical sensors?´, *SPIE Optics and Optoelectronics Conference*, Prague, Czech Republic, April 2019

C12. N.Tran, P.Mohammadyousef, M.Paliouras, M.Trifiro, **A.Kirk**,`Real-time fluorophore-free optical monitoring of ultrafast DNA amplification for qPCR`, *2nd European Biosensor Symposium*, Florence, Italy February 2019

C13. A. Abumazwed, W. Kubo, T. Tanaka, and A.G.Kirk, 'Towards accurate LSPR biosensors based on the projection method: a direct measurement for refractive index', SPIE Photonics North, Ottawa, June 2017

C14. F. Soltani, M. Menard**,** A.G.Kirk, 'Integrated silicon photonic reflective modulator for passive optical networks', IEEE/OSA Conference on Lasers and Electro-optics (CLEO), JW2A.127, May 2017

C15. M. T. Boroojerdi, M. Menard**,** A.G.Kirk**,** Bandwidth Tunable SOI Add-Drop Filter, IEEE/OSA Conference on Lasers and Electro-optics (CLEO), JTh2A.111, May 2017

C16. M. T. Boroojerdi, M. Ménard, and A.G.Kirk, 'Bandwidth Tunable SOI Add-Drop Filter', IEEE International Photonics Conference, Waikoloa, Hawaii, USA, 2016

C17. F.Soltani, D.Patel, M.Ménard, D.V.Plant, A.G.Kirk, 'Low-power DPSK modulation at 10 Gbps using a silicon photonic loop mirror modulator', *IEEE International Photonics Conference*, Waikoloa, Hawaii, USA, 2016

C18. F.Soltani, M.Menard, A.G.Kirk, 'Low-power 20Gb/s Modulator with an Integrated Loop Mirror', *Proc. Asia Communications and Photonics Conference*. (OSA Publishing), paper ASu5B.3, Hong Kong, China, Nov. 2015

C19. MT Boroojerdi, M Menard, A.G.Kirk, 'Implementation of integrated bandwidth tunable optical add-drop filter using contra directional grating assisted couplers', *Proc. IEEE Photonics Conference*, pp 355-356, Reston VA, Oct. 2015

C20. S.Filion-Cote, M.Tabrizian, **A.G Kirk**, 'Surface plasmon resonance biosensor as a tool for the measurement of complex refractive indices', Proc. *IEEE Engineering in Medicine and Biology Society (EMBC), 2015 37th Annual International Conference*, pp 6413-6416, Milan (Italy), Aug 2015

C21. F.Soltani, M.Menard, A.G.Kirk, 'Optical Modulator with an Integrated Loop Mirror', *Proc. IEEE Optical Interconnects Conference*, April 20-22, San Diego, USA, 2015

C22. A. Abumazwed, W. Kubo, T. Tanaka, A.G.Kirk**,** 'Numerical and experimental investigation of plasmonic properties of silver nanocrescent structures for sensing applications', Proc. *Proc. SPIE 9371, Photonic and Phononic Properties of Engineered Nanostructures V*, 937127-937127-7, San Francisco, CA, Feb 2015

C23. S. Karami, A.G.Kirk, O. Liboiron-Ladouceur, 'Efficient method for Long Range Surface Plasmon (LRSPP) wave excitation with Si-based grating couplers', *IEEE International Photonics Conference 2014*, pp 554-555, October 2014.

C24. A.G.Kirk and M.I.Cheema, 'Optimally combining wavelength and quality factor information for sensing in whispering gallery mode optical microcavities', *Proc. SPIE Photonics North*, Montreal, May 2014 (**Invited**)

C25. A. Abumazwed, W. Kubo, T. Tanaka, A.G.Kirk, 'Design and fabrication of plasmonic nanostructures for optical biosensing by nanoimprint lithography', *Proc. SPIE Photonics North*, Montreal, May 2014 (**Invited**)

C26. A. Abumazwed **and** A.G.Kirk, 'Plasmonic properties of suspended nanodisc structures for enhancement of the local electric field distributions', *Proc. SPIE Photonics North*, Montreal, May 2014

C27. A. Abumazwed, W. Kubo, T. Tanaka, A.G.Kirk, 'Study and measurement of plasmonic properties of gold double nanotube structure arrayed on a polymer substrate', *Proc. IEEE Photonics Conference 2013*, TuH1.3, Seattle, WA, September 8-12 2013

C28. A. Abumazwed, W. Kubo, T. Tanaka, A.G.Kirk, 'Simulation and experimental studies on plasmonic properties associated with gold nanofin array on a polymer film', *Proc. IEEE Photonics Conference 2013*, TuH1.6, Seattle, WA, September 8-12 2013

C29. M.Taghi Boroojerdi, A.G.Kirk, 'Wavelength and Bandwidth Tunable SOI Switch Using Integrated Gratings', , *Proc. IEEE Photonics Conference 2013*, WD2.4, Seattle, WA, September 8-12 2013

C30. Z Mi, MHT Dastjerdi, P Bianucci, Z Tian, Q Zhong, V Veerasubramanian, PJ Poole**, AG Kirk**, DV Plant, 'Rolled-up 1.5 µm InAs quantum dot tube lasers and integrated nanophotonic circuits on Si', *IEEE Photonics Society Summer Topical Meeting Series*, p. 34-35, 2013

C31. M.I. Cheema, U.A. Khan, A.M. Armani, **A.G. Kirk**, 'Application of phase shift ring down spectroscopy to microcavities for biosensing', SPIE BIOS 2013, ***Invited Keynote talk***

C32. S. Filion Côté, P. J. R. Roche, A.G.Kirk, 'Spectro-angular optical biosensor based on surface plasmon resonance operating in the visible spectrum', *Proc. SPIE 8597, Plasmonics in Biology and Medicine X*, 859711 (February 21, 2013); doi:10.1117/12.2004583, 2013

C33. V Veerasubramanian, G Beaudin, A Giguere, B Le Drogoff, V Aimez, **A G Kirk**, 'Apodized comb filters on SOI using sidewalled sampled gratings'*, OSA Integrated Photonics Research, Silicon and Nano-Photonics (IPR) Topical Meeting*, Colorado Springs, June 2012

C34. Philip J. R. Roche, Kevin Greig, Yucai Wang, Maurice C. K. Cheung, **Andrew G. Kirk**, Vamsy P. Chodavarapu, 'Design of a gel electrophoresis device with an integrated transmitter/receiver system for power delivery

and data communication: toward a wireless lab-on-chip', *SPIE Photonics West*, paper 8212-23 of Conference 8212, January 2012

C35. Philip J. Roche, Maurice Cheung, V. Chodavarapu, Brian Ward, Momar Ndao, **Andrew Kirk**, 'A study of a self diagnostic platform for the detection of A2 biomarker for Leishmania donovani', *SPIE Photonics West,* Paper 8229A-11 of Conference 8229A, January 2012

C36. Philip J. R. Roche, Songzhe Wang, Maurice Cheung, Vamsy Chodavarapu, **Andrew G. Kirk**, 'A nanorod polymer micro-array formed by microcontact printing', *SPIE Photonics West*, Paper 8231-20 of Conference 8231, January 2012

C37. Philip J. R. Roche, Maurice C. Cheung, Lenore Beitel, Mark A. Trifiro, **Andrew G. Kirk**, Vamsy P. Chodavarapu, 'Optical mapping by low-cost instrumentation and disposable chemically induced nanochannels', *SPIE Photonics West*, Paper 8231-16 of Conference 8231, January 2012

C38. Z. Mi, P. Bianucci, M. H. T. Dastjerdi, S. Mukherjee, Z. Tian, V. Veerasubramanian, A.G.Kirk, and D. V. Plant, '1.3 – 1.55 µm Self-organized InAs Quantum Dot Microtube Lasers on Silicon', *Proc. IEEE Photonics Conference 2011*, Arlington, VA, p. 535-536, 2011

C39. Z. Tian, V. Veerasubramanian, P. Bianucci, Z. Mi , A.G.Kirk, and D. V. Plant, , 'Characterization of InGaAs/GaAs microtubes at transparent wavelengths', , *Proc. IEEE Photonics Conference 2011*, Arlington, VA, p. 745-746, 2011

C40. V. Veerasubramanian; G. Beaudin; A. Giguere; B. LeDrogoff; V. Aimez; A.G.Kirk , 'Demonstration of waveguide-coupled sidewalled grating filters on SOI', *Proc. IEEE Photonics Conference 2011*, Arlington, VA, p. 597-598, 2011

C41. V. Veerasubramanian; G. Beaudin; A. Giguere; B. LeDrogoff; V. Aimez; A.G.Kirk, 'Vertical SG-DBR Based Tunable Hybrid Silicon Evanescent Laser', *Proc. Conference on Lasers and Electro-optics*, Baltimore 2011.

C42. A.G.Kirk, 'Integration strategies for planar photonic devices', *Proc. Intl. Topical Meeting on Information Photonics*, Ottawa, ON, May 2011, ***Invited***

C43. M.I.Cheema and A.G.Kirk, 'Application of ring down measurement approach to micro-cavities for bio-sensing applications', *Proc. SPIE Photonics West*, San Francisco, CA, 2011.

C44. Y-P Zhang, V P. Chodavarapua, **A G. Kirk**, M P. Andrews, M Carluer and Gilles Picard, 'Origin of iridescence in chiral nematic phase nanocrystalline cellulose for encryption and enhanced color', *Proc. SPIE Photonics West*, San Francisco, CA, 2011.

C45. V. Veerasubramanian, G. Beaudin, A. Giguère, B. LeDrogoff, V. Aimez, A.G.Kirk, 'Hybrid III-V silicon Silicon evanescent lasers with vertical sidewalled gratings', . *IEEE Photonics Society Winter Topical Meeting* (Keystone, CO), January 2011

C46. A.Khorshidahmad, A.G.Kirk**,** 'Tunable Multi-wavelength Source based on a Nested Heterostructure Photonic Crystal Cavity', *Proc. IEEE Photonics Society Winter Topical Meeting* (Keystone, CO), January 2011

C47. Philip J. R. Roche, Maurice Cheung , Songzhe Wang, Behnam Banan, Vamsy Chodavarapu, **Andrew G. Kirk**, 'Demonstration of a reusable plasmonic polymer microarray sensing platform'*, Proc. SPIE Conference on Nanoscale Imaging, Sensing, and Actuation for Biomedical Applications VIII*, San Francisco, CA, DOI: 10.1117/12.878848 , January 2011

C48. A.Jafari and A.G.Kirk, 'Demonstration of a distributed etched diffraction grating demultiplexer', *Proc. IEEE Photonics Society Annual Meeting* (Denver CO), November 2010.

C49. A.Khorshidahmad, A.G.Kirk , 'Multi-wavelength Generation via a Heterostructure Cavity Embedded in a Photonic Crystal Ring', , *Proc. IEEE Photonics Society Annual Meeting* (Denver CO), November 2010.

C50. V. Veerasubramanian, G. Beaudin, A. Giguère, B. LeDrogoff, V. Aimez, and A.G.Kirk, 'Waveguide coupled drop filters on SOI using vertical sidewalled grating resonators', *Proc. IEEE Photonics Society Annual Meeting* (Denver CO), November 2010.

C51. M.Cheema and A.G.Kirk, 'Implementation of the Perfectly Matched Layer to Determine the Quality Factor of Axisymmetric Resonators in COMSOL', *COMSOL Conference 2010*, Boston MA 2010.

C52. A.Khorshidahmad, A.G.Kirk, 'Optical Frequency Comb Generation via a Heterostructure Cavity Embedded within a Photonic Crystal Ring Resonator', *Proc. OSA Frontiers in Optics*, Rochester NY, FTH15, 2010

C53. P.J.R. Roche, M. Cheung, **A.G. Kirk**, V. Chodavarapu, 'Enhancement of luminescent quenching oxygen sensing by gold nanoparticles: a comparison between luminophore:matrix:nanoparticle thin film on glass and gold coated substrates', *SPIE Proceedings* (Photonics North, Niagara Falls, Canada), June 1st-3rd, 2010

C54. M.Menard and A.G.Kirk , 'Integrated Fabry-Perot Comb Switches: Transmission Experiments', *Proc. IEEE-Photonics Society Annual Meeting*, WV3, Antalya, Turkey, 2009

C55. C.Alleyne, P.Roche, A.G.Kirk, 'Spectro-angular surface plasmon biosensor applied to drug binding assays', *Proc. IEEE-Photonics Society Annual Meeting*, WR3, Antalya, Turkey, 2009

C56. A.Khorshidahmad, A.G.Kirk , 'Wavelength Conversion by Interband Transition in a Nested Photonic Crystal Cavity', *Proc. IEEE-Photonics Society Annual Meeting*, MD4, Antalya, Turkey, 2009

C57. A.Khorshidahmad, A.G.Kirk , 'Analysis of the Composite Superprism Demultiplexer', *Proc. IEEE-Photonics Society Annual Meeting*, ThL3, Antalya, Turkey, 2009

C58. A.Khorshidahmad, A.G.Kirk**,** 'Wavelength Conversion by Interband Transition in a Double Heterostructure Photonic Crystal Cavity', *Proc. OSA Topical Meeting on Integrated Photonics and Nanophotonics Research Applications (IPNRA)* 2009

C59. A.Khorshidahmad, A.G.Kirk 'Nested Photonic Crystal Cavity for On-chip Wavelength Conversion', *Proc. IEEE-LEOS Topical Meeting in Nanophotonics*, Innsbruck, Austria, 2009

C60. A. Khorshidahmad and A.G.Kirk, "Scheme for in-plane pumping of a photonic crystal heterostructure cavity," *Proc. IEEE-LEOS Annual Meeting 2008*, Newport Beach, CA, 2008

C61. A.Jafari and A.G.Kirk, 'Distributed Etched Diffraction Grating Demultiplexer with Engineered Response', *Proc. IEEE-LEOS Annual Meeting 2008*, Newport Beach, CA, 2008

C62. A.Khorshidahmad, A.G.Kirk, Stratified Photonic Crystal Demultiplexer, *Proc. Integrated Photonics and Nanophotonics Research and Applications (IPNRA) 2008 Technical Digest.* (Optical Society of America, Ed.), 2008.

C63. A.G.Kirk, 'A comparison of beam deflection electro-optic switches', *Proc. IEICE Photonics in Switching International Topical Meeting*, Sapporo, Japan, August 2008. ***Invited***

C64. M.Menard and A.G.Kirk, 'Broadband integrated Fabry-Perot electro-optic switch', *Proc. IEICE Photonics in Switching International Topical Meeting*, Sapporo, Japan, August 2008

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C69. A.Bakhtazad and **A.G. Kirk**, 'Stratified Photonic Crystal Demultiplexer', *IEEE-LEOS Annual Meeting*, (Montreal, QC), 2006

C70. A.Bakhtazad, A.Khorshidahmad, A.S.Jugessur and **A.G. Kirk**, '1-D Photonic Crystal as an Anti-Reflection Layer for First Band Photonic Crystals', *IEEE-LEOS Annual Meeting*, (Montreal, QC), 2006

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C73. G.Sun, **A.G. Kirk**, 'Pseudo-interference and its application in determining averaged phase refractive index of photonic crystals', *Proc. IEEE-LEOS Annual Meeting* (Montreal, QC), p. 841-842, 2006.

C74. G.Sun, A.S.Jugessur, A.G.Kirk, 'Saturated Super-Resolution Imaging of Photonic Crystal with Negative Refraction; Proc IEEE Optical Data Storage Topical Meeting, 2006, pp 73-75, 2006

C75. X. D. Hoa, **A.G. Kirk** and M. Tabrizian, 'Modelling and Implementation of a Novel SPR Biointerface for Time-Effective Detection of Sepsis Biomarkers', *Proc. IEEE Workshop on Computer Architecture for Perception and Sensing (CAMPS 2006)*, Montreal, 2006.

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C82. P.Dong, A.G.Kirk, 'Nonlinear frequency conversion in waveguide directional couplers', Proc. SPIE Vol. 5646 (Nonlinear Optical Phenomena and Applications), pp 191-199, 2005.

C83. D. V. Plant and A.G.Kirk, "Design rules for high speed, low power optoelectronic-VLSI (OE-VLSI) circuits and systems," in *Progress in Biomedical Optics and Imaging - Proceedings of SPIE,* 5730 ed San Jose, CA, United States: International Society for Optical Engineering, Bellingham, WA 98227-0010, United States, 2005, pp. 73-79.

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C88. Bakhtazad, A. and Kirk, A. G. 'Lens design with planar 1-D photonic crystal.', Proc. Photonics North, Ottawa 2004. 2004.

C89. P.Dong and A.G. Kirk, 'Second-order Bragg waveguide grating as a 1D photonic band gap structure in SOI waveguide', Proc. SPIE Photonics North, Ottawa, 2004

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C91. A.G.Kirk, M.Menard, P.Dong and E.Bisaillon, 'Integration strategies for micro-optical systems', **Proc. SPIE 5453** Micro-Optics, VCSELs, and Photonic Interconnects (Ed. H. Thienpont, K. D. Choquette, M. R. Taghizadeh), 2004. ***Invited***

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C93. P.Dong, A.Kirk, 'Compact grating coupler between vertically stacked Silicon-on-insulator waveguides', Proc. SPIE **5357** (Optoelectronic integration on silicon), pp 135-142, 2004

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C99. A.G.Kirk and M.Châteauneuf, 'Optical design choices for VCSEL-based free-space optical interconnects', SPIE Photonics Fabrication Europe, Bruges, October 2002 *Invited*

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C101. C.J. Alleyne and **A.G. Kirk**, 'Transmission Uniformity of Diffractive Parallel Optical Interconnect Relays: A Numerical Analysis Based on Rigorous Coupled Wave Theory', *Proc. LEOS Annual Meeting*, pp 901-902, Glasgow, UK, November 2002.

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Multistage Free-space Optical Interconnection System', in *Optics in Computing 2000,* SPIE 4089, pp. 449-459, 2000.

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