

**UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

EMPIRE TECHNOLOGY DEVELOPMENT
LLC,

Plaintiff,

vs.

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA,
INC.,

Defendants.

Case No. 2-23-cv-00427-JRG-RSP

JURY TRIAL DEMANDED

**DEFENDANT SAMSUNG'S IDENTIFICATION
OF PRELIMINARY CLAIM CONSTRUCTIONS**

Pursuant to the Docket Control Order (Dkt. 25) and P.R. 4-2, Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, "Defendants" or "Samsung") provide the following list of preliminary constructions for claim terms, phrases, or clauses in U.S. Patent Nos. 8,798,120 ("the '120 Patent") and 8,565,331 ("the '331 Patent").

Defendants' preliminary claim constructions are based on Defendants' analysis and investigation to date. The positions taken in this document are preliminary, and Defendants reserve the right to amend their proposed claim constructions. Specifically, Defendants reserve the right to amend or modify the preliminary claim constructions in response to: the preliminary claim constructions identified by Plaintiff; the parties' meet and confer discussions regarding the preliminary claim constructions; any other positions taken by Plaintiff regarding the construction or meaning of claim terms; any additional relevant information learned through discovery; any relevant proceedings before the Patent Office; and any orders of the Court in this matter.

To the extent the claim terms, phrases, or clauses set forth herein include particular terms, phrases, or clauses appropriate to be construed separately, such terms, phrases, or clauses are deemed part of

this disclosed list. Similarly, to the extent it is appropriate to construe terms, phrases, or clauses listed herein in the context of additional claim language, such additional language is deemed part of this disclosure.

Defendants' disclosure of extrinsic evidence is preliminary and based on Defendants' analysis and investigation to date and the preliminary constructions by Plaintiff and Defendants. Defendants reserve the right to rely on extrinsic evidence identified by Plaintiff as supporting Plaintiff's preliminary claim constructions and to amend or modify its disclosure of extrinsic evidence supporting Defendants' preliminary constructions, as well as submit additional evidence (including any new extrinsic evidence), in response to: intrinsic and extrinsic evidence identified by Plaintiff as supporting Plaintiff's preliminary claim constructions; the parties' meet and confer discussions regarding the preliminary claim constructions; any other positions taken by Plaintiff regarding the construction or meaning of claim terms; any additional relevant information learned through discovery; any relevant proceedings before the Patent Office; and any orders of the Court in this matter. Defendants' disclosure of specific extrinsic evidence does not imply or admit that any technical features referenced in the extrinsic evidence are relevant to or are within the scope of any claim term. For example, Defendants' disclosure of extrinsic evidence encompasses both affirmative evidence and rebuttal evidence that Defendants reasonably anticipate may be relevant at this stage. Defendants reserve the right to rely on any extrinsic evidence produced by Plaintiff and to submit additional rebuttal evidence.

Defendants identify the below list of preliminary claim constructions for claim terms, phrases, or clauses of the Asserted Patents and extrinsic evidence. Defendants also reserve the right to rely on the intrinsic evidence, including the patent specification and claims, the prosecution history for the patents and any related patents, the IPR proceedings and filings involving the patents, and any prior art cited in the forgoing.

Claim Terms, Phrases, or Clauses	Associated Patent/Claims	Preliminary Construction	Extrinsic Evidence
“wherein the controller is configured to receive a control signal and, in accordance with the control signal, to select between a multiple-input multiple-output (MIMO) mode ... and a single-input multiple-output (SIMO) mode ... ”	'120 Patent, Claims 25 and 29	“wherein the controller is configured to receive a control signal and to select between a MIMO mode and a SIMO mode as indicated by the control signal” Alternatively, the term is indefinite.	<i>Control</i>, Dictionary of Science and Technology (2d ed., 2007) (“the action of directing or working in a specific way ... to make a machine, system or procedure work in a specific way”). <i>Control signal</i>, Dictionary of Science and Technology (2d ed., 2007) (“an electrical signal transmitted to control the actions of a circuit”). <i>Control</i>, Collins English Dictionary (2008) (“power to direct something ... to have power over”). <i>Control</i>, Merriam-Webster’s Collegiate Dictionary (11th ed., 2008) (“to exercise restraining or directing influence over ... to have power over ... an act or instance of controlling ... power or authority to guide or manage”). <i>Control</i>, The Chambers Dictionary (11th ed., 2008) (“authority; command; ... a means of operating, regulating, directing or testing; ... to govern; to command or operate”).

Claim Terms, Phrases, or Clauses	Associated Patent/Claims	Preliminary Construction	Extrinsic Evidence
			<i>Control</i>, The American Heritage College Dictionary (4th ed., 2007) (“To exercise authoritative or dominating influence over, direct ... Authority or ability to manage or direct”). <i>Control</i>, Merriam-Webster’s Advanced Learner’s English Dictionary (2008) (“the power to make decisions about how something is managed or done ... the ability to direct the actions of someone or something”). Hongseok Kim, Chan-Byoung Chae, Gustavo de Veciana & Robert W. Heath, Jr., <i>Energy-Efficient Adaptive MIMO Systems Leveraging Dynamic Spare Capacity</i>, IEEE (2008) Hongseok Kim, Chan-Byoung Chae, Gustavo de Veciana & Robert W. Heath, Jr., <i>A Cross-Layer Approach to Energy Efficiency for Adaptive MIMO Systems Exploiting Spare Capacity</i>, IEEE Transactions on Wireless Communications, Vol. 8, No. 8 (Aug. 2009) EMPIRE_0000838 to

Claim Terms, Phrases, or Clauses	Associated Patent/Claims	Preliminary Construction	Extrinsic Evidence
			EMPIRE_0000937. Declaration of one or more of Samsung's experts, as further described below.
"power consumption of the first and second circuitry"	'120 Patent, Claims 25 and 29	"power used by the first and second physical transceiver circuitry, not the signal energy"	Hongseok Kim, Chan-Byoung Chae, Gustavo de Veciana & Robert W. Heath, Jr., <i>Energy-Efficient Adaptive MIMO Systems Leveraging Dynamic Spare Capacity</i>, IEEE (2008) Hongseok Kim, Chan-Byoung Chae, Gustavo de Veciana & Robert W. Heath, Jr., <i>A Cross-Layer Approach to Energy Efficiency for Adaptive MIMO Systems Exploiting Spare Capacity</i>, IEEE Transactions on Wireless Communications, Vol. 8, No. 8 (Aug. 2009) <i>Power Consumption</i>, Telecom Dictionary (2007) ("Power Consumption-Power consumption is the amount of energy that a device or system uses over a period of time."). <i>Consumption</i>, Dictionary of Science and Technology (2d ed., 2007) ("the fact or process of using something"). <i>Consume</i>, Merriam-

Claim Terms, Phrases, or Clauses	Associated Patent/Claims	Preliminary Construction	Extrinsic Evidence
			Webster’s Advanced Learner’s English Dictionary (2008) (“to use (fuel, time resources, etc.)”). <i>Consumption</i>, Merriam-Webster’s Advanced Learner’s English Dictionary (2008) (“the use of something (such as fuel)”). <i>Consume</i>, Concise Oxford English Dictionary (11th ed., 2008) (“use up”). <i>Consumption</i>, Concise Oxford English Dictionary (11th ed., 2008) (“the action or process of consuming ... an amount consumed”). <i>Consume</i>, The Chambers Dictionary (11th ed., 2008) (“to use up; ... to waste or spend”). <i>Consumption</i>, The Chambers Dictionary (11th ed., 2008) (“the act or process of consuming or using up; the quantity consumed”). <i>Consume</i>, Collins English Dictionary (2008) (“to use up”). <i>Consumption</i>, Collins English Dictionary (2008) (“the quantity of something consumed or used”).

Claim Terms, Phrases, or Clauses	Associated Patent/Claims	Preliminary Construction	Extrinsic Evidence
			<i>Consume</i>, The American Heritage College Dictionary (4th ed., 2007) (“To expend; use up ... To be destroyed, expended, or wasted.”). <i>Consumption</i>, The American Heritage College Dictionary (4th ed., 2007) (“The act or process of consuming.”). <i>Consume</i>, Merriam-Webster’s Collegiate Dictionary (11th ed., 2008) (“to take up ... to take ... use up” “consumption” – “the act or process of consuming”). EMPIRE_0000838 to EMPIRE_0000937. Declaration of one or more of Samsung’s experts, as further described below.
“an idle power consumption of the mobile station”	’120 Patent, Claim 25	“power used by the mobile station when it is not sending data over the communications channel”	Hongseok Kim, Chan-Byoung Chae, Gustavo de Veciana & Robert W. Heath, Jr., <i>Energy-Efficient Adaptive MIMO Systems Leveraging Dynamic Spare Capacity</i>, IEEE (2008) Hongseok Kim, Chan-Byoung Chae, Gustavo de Veciana & Robert W. Heath, Jr., <i>A Cross-Layer Approach to Energy Efficiency for</i>

Claim Terms, Phrases, or Clauses	Associated Patent/Claims	Preliminary Construction	Extrinsic Evidence
			<i>Adaptive MIMO Systems Exploiting Spare Capacity</i>, IEEE Transactions on Wireless Communications, Vol. 8, No. 8 (Aug. 2009) EMPIRE_0000838 to EMPIRE_0000937. Declaration of one or more of Samsung's experts, as further described below.
"pilot symbol"	'331 Patent, Claims 1 and 5	"a reference symbol known by the transmitting and receiving devices of a communications system"	U.S. Patent No. 8,514,913 Ryan M. Dreifuerst, Robert W. Heath, Jr., Ali Yazdan, <i>Massive MIMO Beam Management in Sub-6 GHz 5G NR</i>, IEEE VTC (2022) Omar El Ayach, Steven W. Peters & Robert W. Heath, <i>The Feasibility of Interference Alignment Over Measured MIMO-OFDM Channels</i>, 59 IEEE Transactions on Vehicular Technology 4309, 4313 (Nov. 2010) Ryan M. Dreifuerst, Robert W. Heath, Jr., <i>Massive MIMO in 5G: How Beamforming, Codebooks, and Feedback enable Larger Arrays</i>, IEEE (2023) Ryan M. Dreifuerst, Robert W. Heath Jr, <i>ML Codebook Design for Initial Access and CSI</i>

Claim Terms, Phrases, or Clauses	Associated Patent/Claims	Preliminary Construction	Extrinsic Evidence
			<i>Type-II Feedback in Sub-6GHz 5G NR</i>, IEEE Transactions on Wireless Communications (2023) Andreas F. Molisch, <i>Wireless Communications</i> (2007) EMPIRE_0000938 to EMPIRE_0000956 Declaration of one or more of Samsung's experts, as further described below.
"a channel matrix of the communications channel"	'331 Patent, Claims 1 and 5	"a matrix of data representing the operation of the communications channel on the transmitted data symbols"	EMPIRE_0000938 to EMPIRE_0000956. David Mazzaressey, Chan-Byoung Chaez, and Robert W. Heath Jr., <i>Jointly Optimized Multiuser Beamforming for the MIMO Broadcast Channel with Limited Feedback</i>, 18th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (2007) J. Andrew Zhang, Fan Liu, Christos Masouros, Robert W. Heath Jr., Zhiyong Feng, Le Zheng, Athina Petropulu, <i>An Overview of Signal Processing Techniques for Joint Communication and Radar Sensing</i>, IEEE Journal of Selected Topics in Signal Processing (2021)

Claim Terms, Phrases, or Clauses	Associated Patent/Claims	Preliminary Construction	Extrinsic Evidence
			Dalin Zhu, Junil Choi, Qian Cheng, Weimin Xiao, and Robert W. Heath Jr., <i>High-Resolution Angle Tracking for Mobile Wideband Millimeter-Wave Systems with Antenna Array Calibration</i>, IEEE Transactions on Wireless Communications (2018) <i>Channel</i>, Microsoft Computer Dictionary (5th Ed. 2002) (“1. A path or link through which information passes between two devices. A channel can be either internal or external to a microcomputer. 2. In communications, a medium for transferring information. Depending on its type, a communications channel can carry information (data, sound, and/or video) in either analog or digital form. A communications channel can be a physical link, such as the cable connecting two stations in a network, or it can consist of some electromagnetic transmission on one or more frequencies within a bandwidth in the electromagnetic spectrum, as in radio and television, or in optical,

Claim Terms, Phrases, or Clauses	Associated Patent/Claims	Preliminary Construction	Extrinsic Evidence
			microwave, or voice-grade communication.”). Declaration of one or more of Samsung’s experts, as further described below.
“replicated data”	’331 Patent, Claims 1 and 5	“copied non-pilot symbols” Alternatively, indefinite under 35 U.S.C. § 112.	U.S. Patent No. 8,514,913 at 4:21-27 Omar El Ayach, Steven W. Peters & Robert W. Heath, <i>The Feasibility of Interference Alignment Over Measured MIMO-OFDM Channels</i>, 59 IEEE Transactions on Vehicular Technology 4309, 4313 (Nov. 2010) J. Andrew Zhang, Fan Liu, Christos Masouros, Robert W. Heath, Zhiyong Feng, Le Zheng & Athina Petropulu, <i>An Overview of Signal Processing Techniques for Joint Communication and Radar Sensing</i>, 15 IEEE Journal of Selected Topics in Signal Processing 1295 (2021) Angel Lozano, Robert W. Heath Jr. & Jeffrey G. Andrews, <i>Fundamental Limits of Cooperation</i>, IEEE Transactions on Information Theory, (March 2012) I.C. Wong, A. Forenza, R.W. Heath & B.L.

Claim Terms, Phrases, or Clauses	Associated Patent/Claims	Preliminary Construction	Extrinsic Evidence
			Evans, <i>Long Range Channel Prediction for Adaptive OFDM Systems</i>, Conference Record of the Thirty-Eighth Asilomar Conference on Signals, Systems and Computers (Nov. 2004) Changyong Shin, Robert W. Heath & Edward J. Powers, <i>Non-Redundant Precoding-Based Blind and Semi-Blind Channel Estimation for MIMO Block Transmission with a Cyclic Prefix</i>, 56 IEEE Transactions on Signal Processing 2509, 2510 (June 2008) Omar El Ayach, Steven W. Peters & Robert W. Heath, <i>The Feasibility of Interference Alignment Over Measured MIMO-OFDM Channels</i>, 59 IEEE Transactions on Vehicular Technology 4309, 4313 (Nov. 2010) <i>Replicate</i>, Collins English Dictionary (2008) (“to make or be an exact copy of; reproduce.”). <i>Replicate</i>, The Chambers Dictionary (2008) (“to fold back; to repeat; to make a replica of”). <i>Replica</i>, The Chambers

Claim Terms, Phrases, or Clauses	Associated Patent/Claims	Preliminary Construction	Extrinsic Evidence
			Dictionary (2008) (“a duplicate; a facsimile”). EMPIRE_0000938 to EMPIRE_0000956. Declaration of one or more of Samsung’s experts, as further described below.

Defendants disclose that one or more of their experts, Dr. Summit Roy and/or Dr. Danijela Cabric, may opine on the topics summarized below and offer testimony in rebuttal to any expert opinions advanced by Plaintiff. Appendix A to this disclosure sets forth Dr. Cabric ’s qualifications and Dr. Roy’s qualifications were previously provided in this case. In reaching their opinions, Dr. Roy and/or Dr. Cabric will rely on their experience and the knowledge of a person of ordinary skill in the art, the state of prior art, the specifications of the asserted patents and their prosecution histories, the IPRs filed against the asserted patents, the language of the asserted claims, evidence identified by Plaintiff in its disclosures, and any information identified by Plaintiff or Defendants in any disclosures or filings in relation to claim construction. By identifying Dr. Roy and/or Dr. Cabric, Defendants do not waive any right and are not precluded from relying on another expert with similar qualifications who may provide a declaration or testimony addressing these issues.

Dr. Roy and/or Dr. Cabric may provide an opinion on the level of ordinary skill in the art. Further Dr. Roy and/or Dr. Cabric may provide opinions regarding how a person of ordinary skill in the art would understand each of the terms identified in the above table, including by providing technical background concerning the respective claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field at the time of the patent, the specifications, the prosecution histories, the claim language, and/or the extrinsic evidence. Additionally for each term in the

above table that Defendants identified as indefinite, Dr. Roy and/or Dr. Cabric may provide opinions explaining that the terms, read in light of the specification delineating the patent and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention, and/or provide opinions explaining why a term in a dependent claim does not narrow the scope of the claim from which it depends.

Dated: October 9, 2024

Respectfully submitted,

/s/ Marc J. Pensabene

Ryan K. Yagura (Tex. Bar No. 24075933)
ryagura@omm.com
Nicholas J. Whilt (*Pro Hac Vice*)
California State Bar No. 247738
nwhilt@omm.com
O'MELVENY & MYERS LLP
400 S. Hope Street, Suite 1900
Los Angeles, CA 90071
Telephone: 213-430-6000
Facsimile: 213-430-6407

Marc J. Pensabene (*Pro Hac Vice*)
New York State Bar No. 2656361
mpensabene@omm.com
O'MELVENY & MYERS LLP
1301 Avenue of the Americas, Suite 1700
New York, NY 10019
Telephone: 212-326-2000
Facsimile: 212-326-2061

Melissa Richard Smith (Tex. Bar No. 24001351)
melissa@gillamsmith.com
GILLAM & SMITH, LLP
303 South Washington Ave.
Marshall, TX 75670
Telephone: 903-934-8450
Facsimile: 903-934-9257

*Counsel for Defendants Samsung Electronics Co., Ltd. and
Samsung Electronics America, Inc.*

CERTIFICATE OF SERVICE

I hereby certify that on October 9, 2024, a true and correct copy of **DEFENDANTS’ IDENTIFICATION OF PRELIMINARY CLAIM CONSTRUCTIONS** was served on all counsel of record via electronic mail.

Dated: October 9, 2022

/s/ Brian Treggs
Brian Treggs
Case Manager
O’Melveny

APPENDIX A

Danijela Cabric

CONTACT INFORMATION

56-147C Engineering IV,
420 Westwood Plaza, UCLA
Los Angeles, CA 90095

Voice: 310-206-8856 (Office), 510-220-5676 (Mobile)
Email: danijela@ee.ucla.edu
Web: <http://cores.ee.ucla.edu>

EDUCATION

University of California, Berkeley, Berkeley, CA
Ph.D., Electrical Engineering, 2007
Advisor: Robert W. Brodersen
Thesis Title: "Cognitive Radios: System Design Perspective"

University of California, Los Angeles, Los Angeles, CA
M.S., Electrical Engineering, 2001
Advisor: Babak Daneshhrad
Thesis Title: "Characterization of a Fast Frequency-Hopped FSK Testbed through Simulations and Field Trials"

University of Belgrade, Belgrade, Serbia
B.S., Electrical Engineering, 1998
Thesis Title: "Mapping of Blood Vessel Boundaries using MRI Velocity Images" (the thesis research was performed at Biological Imaging Center, Department of Computer Science, Caltech, Pasadena)

RESEARCH INTERESTS

Wireless communications system design; Cognitive radios and dynamic spectrum access; Spectrum sharing and spectrum sensing technologies; Machine learning for communications; 5G technologies for millimeter wave communications (mmWave), Massive MIMO and Internet of Things (IoT); VLSI architectures of signal processing and digital communication algorithms; Co-design of radio architectures and signal processing algorithms; RF impairment corrections and compensations using DSP; Performance analysis and experiments on embedded system platforms;

CAREER HISTORY

- **University of California, Los Angeles, CA, USA**
Professor, Department of Electrical Engineering July 2018 - present
- **University of California, Los Angeles, CA, USA**
Associate Professor, Department of Electrical Engineering July 2014 - June 2018
- **University of California, Los Angeles, CA, USA**
Assistant Professor, Department of Electrical Engineering January 2008 - June 2014
- **University of California, Berkeley, CA USA**
Graduate Student Researcher August 2001 - December 2007
System design of cognitive radio spectrum sharing technology from the physical and network layer perspective including theoretical analysis, algorithms, and implementation.
- **Intel Corporation, Santa Clara, CA, USA**
Summer Intern, Communications Technology Lab May 2004- August 2004

Development of cognitive radio spectrum sensing for detection of idle channels in TV bands.

- **InnovICs Wireless Corporation, Los Angeles, CA USA**
Senior Systems Design Engineer January 2001 - August 2001
 System design of a WCDMA mobile transceiver featuring dual-antenna signal processing.
- **University of California, Los Angeles, CA, USA**
Graduate Student Researcher April 1999 - June 2001
 Modeling, analysis, system design and experiments for a wireless fast-frequency-hopped FSK testbed.

SELECTED HONORS AND AWARDS

- **IEEE Fellow, 2021.**
- **Qualcomm Faculty Award, 2020 and 2021.**
- **Best Paper Award** at 4th ACM Workshop on Millimeter-Wave Networks and Sensing Systems (mmNets), 2020.
- **Best Paper Award** at IEEE International Conference on Communications, Networking and Computing (ICNC), 2019.
- **IEEE ComSoc Distinguished Lecturer, 2018-2020.**
- **NSF CAREER Award, 2012.**
- **Hellman Fellowship 2012**, a campus wide program established to support promising assistant professors, University of California, Los Angeles.
- **Okawa Foundation Research Grant 2009**, one of six nation-wide recipients.
- **Samueli Fellow 2008**, University of California, Los Angeles.
- CalVIEW Award for excellence in distance education, University of California, Berkeley, 2005.
- Graduate Division Fellowship, University of California, Berkeley 2001-2002.
- Graduate Division Fellowship, University of California, Los Angeles 2000-2001.
- Summer Undergraduate Research Fellowship, Caltech, Pasadena 1998.

TEACHING EXPERIENCE

- Undergraduate courses at UCLA: Instructor for Signals and Systems (EE102), Digital Signal Processing (EE113), Logic Design for Digital Systems (M16), Circuit Analysis I (EE10), Digital Electronic Circuits (EE115C).
- Graduate courses at UCLA: Developed a new course "Special Topics in Circuits and Embedded Systems: Wireless Communications System Design (EE209AS)", also offered in UCLA MS online program. Instructor for Estimation and Detection (EE230A), Digital Communications (EE230B), Wireless Communications System Design, Modeling and Implementation (EE233).
- Undergraduate courses at UC Berkeley: Probability and Random Processes (EECS 126).
- Graduate courses at UC Berkeley: Course consultant for VLSI Signal Processing (EECS 225C).

CONSULTING EXPERIENCE

- Consultant for Intellectual Ventures, Seattle, WA, 2008-2010.
- Consultant for Specom, Inc., San Diego, CA, 2014-2016.
- Board of Advisors, MaxLinear, Inc., Carlsbad, CA 2017-2021.
- Consultant for LocatorX, Atlanta, GA, December 2018-December 2021.
- Consultant for Perceptronics Solutions, Los Angeles, CA, April 2020-June 2024.

- Consultant for Project Kuiper, Amazon, Inc. July 2020-December 2023.
- Board of Advisors, Delart, June 2021-June 2024.

LITIGATION SUPPORT AND EXPERT WITNESS EXPERIENCE

- **Baker Botts, LLP on behalf of Qualcomm** June 2021 - Sept. 2021
Case: Red Rock Analytics, LLC vs. Qualcomm
Patent Matter: Radio frequency circuits in 4G and 5G smartphones
Project: Provided technical analysis and prior art review for invalidity report.
- **Susman Godfrey, LLP on behalf of Arigna Technologies Ltd** Dec. 2021 - Dec. 2023
Case: Arigna Technologies Ltd vs. Apple
Patent Matter: Power detection and phase correction circuits in 4G and 5G smartphones
Project: Provided technical analysis, claim construction, source code review including schematics, PCB, VHDL; Expert report regarding infringement and domestic industry for three patents; Deposition. The case was settled before the trial.
- **Hudnell Law Group on behalf of Voip-Pal.com Inc** May 2023 - April 2024
Case: Voip-Pal.com Inc. Ltd vs. Meta, Verizon, T-Mobile, Google
Patent Matter: *Inter Partes Review, Ex Partes Reexamination, 101 motion*
Project: Three declarations to support Patent Owner's responses.
- **Susman Godfrey, LLP on behalf of Haptic, Inc** June 2023 - present
Case: Haptic, Inc vs. Apple
Patent Matter: Infringement of double-tap technology (iPhone) using sensors and motion processors
Project: Provided technical analysis, reviewed schematics and prepared claim charts, declaration for claim construction.
- **Susman Godfrey, LLP on behalf of Arigna Technologies Ltd** Nov. 2023 - May 2024
Case: Arigna Technologies Ltd vs. BMW
Patent Matter: Infringement analysis related to DC-DC controllers
Project: Provided technical analysis, reviewed source code and schematics, prepared claim charts. Case was withdrawn.
- **Susman Godfrey, LLP on behalf of Fractus** Dec. 2023 - July 2024
Case: Fractus vs. ADT LLC/Vivint Inc.
Patent Matter: Antenna technology for mobile phones and IoT devices
Project: Prepared expert validity report, Deposition. The case was settled before the trial.
- **Sidley Austin, LLP on behalf of Lenovo and Motorola** Aug. 2024 - present
Case: Theta Inc. vs. Lenovo and Motorola
Patent Matter: Power Dissipation Reduction in Wireless Transceivers
Project: Claim construction, Non-infringement technical analysis.

PROFESSIONAL SERVICE

- Senior Editor for IEEE Journal on Selected Areas in Communications (JSAC), Sept. 2022-present.
- Special session Chair, IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Oulu, Finland, July 4-6, 2022.
- General Co-Chair, IEEE 2021 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN), Los Angeles, CA, Dec. 2021.
- General Co-Chair, IEEE 2019 Vehicular Networking Conference (VNC), Los Angeles, CA, Dec 2019.
- Special session organizer, "Beam-forming and beam-tracking in MIMO systems", at Asilomar Conference on Signals, Systems, and Computers, 2019.

- Symposium Chair "Machine Learning for Communications", IEEE International Conference on Networking and Communications, (ICNC 2019)
- Technical Committee Member for Signal Processing for Communications and Networking (SPCOM) January 2019-present.
- Associate Editor for IEEE Signal Processing Magazine, August 2018-present.
- Associate Editor for IEEE Transactions on Signal and Information Processing over Networks, November 2018-present.
- Associate Editor for IEEE Transactions on Mobile Computing, June 2018-present.
- Associate Editor for IEEE Transactions on Wireless Communications, June 2018-present.
- Guest Editor for EURASIP Journal on Wireless Communications and Networking, special issue on "Dynamic Spectrum Access and Cognitive techniques for 5G", November 2017.
- Co-Chair, Modelling and Theory Track, 11th International ICST Conference on Cognitive Radio Oriented Wireless Networks and Communications (CROWNCOM 2016)
- Associate Editor for IEEE Transactions on Cognitive Communications and Networking, January 2015-present.
- Editor for MONET special issue on CROWNCOM 2013.
- Associate Editor for IEEE Communication Letters, January 2013-January 2014.
- Associate Editor for IEEE Journal of Selected Areas in Communications (JSAC) - Cognitive Radio series, June 2011-December 2014.
- Guest Editor for EURASIP Journal on Wireless Communications and Networking, special issue on "Dynamic Spectrum Access: From the Concept to the Implementation", April 2010.
- TPC Chair of the 8th International ICST Conference on Cognitive Radio Oriented Wireless Networks and Communications (CROWNCOM 2013), premier conference in cognitive radio networks area.
- Co-chair, ACM Workshop on Cognitive Radio (CoRoNet), ACM MobiCom, September 2011.
- Special Session Organizer "Spectrum Sensing for Cognitive Radios", IEEE CAMSAP 2013.
- Publications Co-Chair and Organizing Committee member at IEEE DySPAN, 2007.
- Technical program committee member: ICC (2008-2013), Globecom (2009-2013), DySPAN (2005-2011), Crowncom(2012-2013, 2016-present), VTC (2012), PIMRC (2011-2012), GlobalSIP (2017-present).
- Proposal reviewer/panelist for NSF (CNS/NeTS, CNS/EARS, CNS/WiFiUS, ECCS/CCSS), UC Discovery, Qatar National Research Fund QNRF, European Commission (H2020), Singapore Ministry of Education.

DEPARTMENT SERVICE

- ECE Department Vice Chair of Undergraduate Affairs, July 2022-present.
- Fast Track Program Director, July 2021-June 2022.
- Fast Track Program Faculty advisor, September 2019-present.
- Staff recruitment, promotions and welfare committee, June 2017-present.
- EE Department Area Director for Circuits and Embedded Systems, June 2015-June 2018.
- Awards committee for Best Ph.D. and MS theses, Best TA awards, Dissertation Year Fellowships, June 2015-June 2018.
- Adhoc committee for merit increases and adjunct faculty appointments,(three cases, Winter 2017).
- Recruitment committee, June 2015-June 2018.
- Courses and Curriculum committee, June 2015-June 2018.

- Co-Chair, Annual Research Review, EE Department, 2013-2015.
- Graduate Admissions Committee Member, 2008-2011.
- Organizer of EE Department Seminar Series, Winter 2009 and Fall 2012.
- Member of EE Undergraduate curriculum revision committee for design courses and computer engineering pathway, 2009.

UNIVERSITY SERVICE

- Samueli Undergraduate Admissions Team, UCLA Engineering, 2021-present.
- Faculty Executive Committee, UCLA Engineering, 2019-2022.
- 2019 Opus/Interfolio user group review committee.
- 2017 UCRI Lab Fees Fellowship Review Panel, October 2017.
- Hellman Fellowship Selection Committee, Spring 2017, Spring 2018.
- HSSEAS Strategic Hiring Committee for Future Internet, Networking, and Cybersecurity, January 2017-June 2018.
- HSSEAS Strategic Planning Committee for Future Internet, Networking, and Cybersecurity, Summer 2016.
- HSSEAS Courses Evaluations and Petitions Reviewer for Associate Dean of Academic and Student Affairs (Prof. Wesel), June 2015-present.
- UCLA Tech Forum Organization Committee, 2015.
- UCLA Extension Advisory Board Member, 2013-2015.

CONTRIBUTIONS TO DIVERSITY AND OUTREACH

- Invited Keynote, Society of Women Engineers Los Angeles Chapter, April 2024.
- Invited lecture, Geffen Academy at UCLA (middle and high school), "How radio waves became a universal way of connecting us? What is ahead in wireless technology?", March 2021, March 2022.
- Interview by The Hill TV, "The Rise of 5G", August 2021.
- Invited panelist, Sundance Film Festival, "Discovering Tomorrow", January 2020.
- Invited speaker, UCLA Faculty Women's Club, "A closer look at women in engineering: The Hedy Lamarr story", March 2019.
- Invited panelist, Women in Science and Film at 2017 Sloan Film Summit, October 27, 2017.
- Invited panelist, represented women in STEM at Alfred Sloan foundation organized panel after the premiere of the documentary film about Hedy Lamarr's life, Tribeca film festival, New York, April 23, 2017.
- Interview and appearance in documentary film "Bombshell: The Hedy Lamarr Story", inventor of frequency-hopping technology, October 16, 2016.
- Invited panelist at Networking Networking Women (N2W) forum, at IEEE DySPAN, Baltimore, March 8, 2017.
- Invited speaker at UCLA EE alumnae inaugural meeting (Bay Area chapter), Los Altos, March 19, 2017.

FUNDING

- PI, Northrop Grumman, Research gift, \$50K, 2024.
- PI, Toyota, Research gift, \$60K, 2024.

- PI, AFRL, “Intelligent Detection of Human-Generated Threats (IDEHT),” \$400K, 2023-2025.
- PI, NSF, “FuSe: Collaborative Optically Disaggregated Arrays Extreme-MIMO Radio Units (CO-DAeMIMO),” \$470K, 2023-2026.
- PI, NSF, “FuSe-TG: Electronic-Photonic Systems-on-Chip for Computation, Communication and Sensing,” \$400K, 2023-2024.
- PI, Northrop Grumman, Research gift, \$50K, 2023.
- PI, Toyota, Research gift, \$50K, 2023.
- PI, NSF, “NSF-AoF: CNS Core: Small: Machine Learning Based Physical Layer and Mobility Management Solutions Towards 6G,” \$392K, 2022-2025.
- PI, Toyota, Research gift, \$50K, 2022.
- PI, DARPA/Raytheon, “Tensors for Reprogrammable Intelligent Array Demonstrations (TRIAD),” \$400K, 2021-2022.
- PI, NSF, “Spectrum Innovation Initiative Center: SpectrumX,” \$520K, 2021-2025.
- PI, Toyota, Research gift, \$75K, 2021.
- PI, Qualcomm Faculty Award, \$75K, 2021.
- PI, Toyota, Research gift, \$50K, 2020.
- PI, Qualcomm Faculty Award, \$75K, 2020.
- PI, NSF. “Collaborative Research: CNS core: Medium: True-Time-Delay based MIMO System and Testbed for Low-Latency Wideband Beam and Interference Management in Millimeter Wave Networks”, \$550K, 2020-2024.
- PI, NSF. “SII Planning Grant: National Center for Radio Spectrum Innovations (NCRSI)”, \$300K, 2020-2021.
- PI, Toyota, Research gift, \$50K, 2019.
- PI, Toyota, Research gift, \$50K, 2018.
- PI, NSF/ENG, “Circuits and Systems Design for UAV Swarm Enabled Communications”, \$450K, 2019-2022.
- Co-PI, DARPA, “DRBE: Hardware Acceleration at Wafer Scale”, \$700K (Total \$8.8M) 2020-2021.
- PI, SRC/JUMP, CONIX research center, “Enhancing Communications and Sensing Capabilities of Network Infrastructure for Pervasive Perception, Cognition and Action with Distributed mmWave/THz Arrays”, \$1.6M, 2018-2022.
- PI, NSF/CNS, “NeTS: Small: Coordinated Beam Discovery, Association, and Handover in Ultra-dense Millimeter Wave (mmW) Cellular Networks”, \$500K, 2017-2020.
- PI, Utopia Compression, research gift, \$25K, 2017.
- PI, NSF/CNS, “Dynamic Spectrum Access by Learning Primary Network Topology”, \$200K, 2015-2018.
- Co-PI, NSF/EARS, “Enabling Algorithms, Signal Processing, and Circuits for Agile Cognitive Radio in CMOS Technology”, \$400K (Total \$1.2M), 2013-2017.
- Co-PI, IARPA/Smart Collection, “Reliable Inference with Missing, Masked, Malfunctioning or Malicious Sensors (RIM4S)”, \$125K (Total \$500K), 2012-2013.
- PI, Hellman Fellowship, “Improving Security in Wireless Networks through Spectrum Sensing”, \$20K, 2012-2013.
- PI, DOT/Caltrans, “DSRC for Workzones and Major Incident Management”, \$178K, 2012-2015.
- PI, NSF/CAREER, “Cognitive Co-Existence In Heterogeneous Wireless Networks”, \$420K, 2012-2017.
- Co-PI, DARPA/MTO, “A/D-CLASIC: Analog-FFT based Cognitive Radio Sensor ICs”, \$1M (Total \$5.9M), 2011-2017.

- PI, NSF/CNS, “Spatio-Temporal Spectrum Sensing”, \$250K, 2011-2015.
- PI, Okawa Foundation Research Grant, \$10K, 2009-2010.
- Co-PI, DARPA/MTO, “HEALICS: Self-Healing Baseband Processor for Cognitive Radios”, \$600K (Total \$4.2M), 2009-2014.
- PI, DOT/Caltrans, “DSRC Standards Testing: 5MHz Band-Plan Architecture and Communication in Emergency Scenarios”, \$191K, 2008-2011.
- PI, Cisco, “Collaborative, Spatially Aware Spectrum Sensing for Security and Network Management”, \$30K (Total \$60K), 2009-2010.

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INVITED PAPERS

- [1] H. Yan, V. Boljanovic, and D. Cabric, "Wideband millimeter-wave beam training with true-time-delay array architecture," (invited paper) Asilomar Conference on Signals, Systems, and Computers, Nov. 2019.
- [2] H. Yan, and D. Cabric, "DSP Linearization for Millimeter-Wave All-Digital Receiver Array with Low-Resolution ADCs," (invited paper) in IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), 2019.
- [3] V. Boljanovic, H. Yan, and D. Cabric, "Tracking Sparse mmWave Channel under Time Varying Multipath Scatterers", Asilomar Conference on Signals, Systems, and Computers, Oct. 2018
- [4] H. Yan, V. Boljanovic, D. Cabric, "Tracking Sparse mmWave Channel: Performance Analysis under Intra-Cluster Angular Spread", in IEEE SPAWC 2018.
- [5] H. Yan, S. Chaudhari, D. Cabric, "Wideband Channel Tracking for mmWave MIMO System with Hybrid Beamforming Architecture", in *Proc. IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP)*, December 2017.

- [6] M. Mirmohammadsadeghi, D. Cabric, “Modulation Classification using Convolutional Neural Networks and Spatial Transformer Networks”, in *Proc. IEEE Asilomar Conference on Signals, Systems and Computers*, October 2017.
- [7] D. Cabric, “Coordinated Beam Discovery, Association, and Handover in Ultra-dense Millimeter Wave (mmW) Cellular Networks”, in *NSF mmWave RCN workshop*, University of Wisconsin, Madison, July 2017.
- [8] D. Cabric, “Algorithm Architecture Co-design for Energy Efficient Blind Modulation Classification”, invited paper to SampTA 2015, May 2015.
- [9] J. Werner, J. Wang, A. Hakkarainen, M. Valkama and D. Cabric, “Primary User Localization in Cognitive Radio Networks Using Sectorized Antennas”, in *The 10th Annual Conference on Wireless On-Demand Network Systems and Services (WONS)*, Jan. 2013.
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- [14] D. Cabric, A. Tkachenko and R.W. Brodersen, “Cognitive Radio Experiments Using Reconfigurable BEE2 Platform”, in *Proc. IEEE Asilomar Conference on Signals, Systems and Computers*, Oct.–Nov. 2006.
- [15] D. Cabric, M.S.W. Chen, D. Sobel, Y. Yang and R.W. Brodersen, “Future Wireless Systems: UWB, 60 GHz, and Cognitive Radios”, in *Proc. IEEE Custom Integrated Circuits Conference (CICC)*, Sep. 2005.
- [16] D. Cabric, S.M. Mishra and R.W. Brodersen, “Implementation Issues in Spectrum Sensing for Cognitive Radios”, In *Proc. IEEE Asilomar Conference on Signals, Systems and Computers*, Nov. 2004.
- [17] D. Cabric, H. Zou, S. Mohan and B. Daneshrad, “Field Experiments of a Fast Frequency Hopped FSK Testbed with Diversity Combining and Packet Communication”, in *Proc. SPIE Annual Meeting*, Aug. 2001.

PATENTS

- [1] Danijela Cabric, Opportunistic Radio Frequency Communications, #US12/351,697.
- [2] Pengfei Xia, Timothy Leo Gallagher, Danijela Cabric, Detecting co-channel interference using cyclic autocorrelation test, #US11757481.

INVITED TALKS, PANELS, KEYNOTES, AND TUTORIALS

- [1] D. Cabric, Invited Panelist, “6G CTO Panel: AI/ML in the 6G era”, at 6G@UT Forum, UT Austin, April 2024.
- [2] D. Cabric, **Tutorial**, “Radar Communications Coexistence and Millimeter Wave Spectrum Sharing”, in IEEE MTT-S International Microwave Symposium (IMS), April 2024.

- [3] D. Cabric, **Keynote speaker**, “Scaling Up Antenna Arrays, Carrier Frequency and Bandwidth for Low Latency Communications and Massive Connectivity Beyond 5G”, in IEEE Consumer Communications and Networking Conference, January 2024.
- [4] D. Cabric, **Plenary speaker**, “Scaling Up Antenna Arrays, Carrier Frequency and Bandwidth for Low Latency Communications and Massive Connectivity Beyond 5G”, in IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing, December 2023.
- [5] D. Cabric, Invited speaker, “Out of the Lab and into the Field: A Model for Modern RF Systems”, in NVIDIA’s GTC conference, March 2023.
- [6] D. Cabric, Invited speaker, Raytheon University day, Sept. 2022.
- [7] D. Cabric, Invited speaker, “Machine Learning Assisted Millimeter Wave Beam Training, Tracking, and Prediction”, at ACM WiOpt workshop on Machine Learning for Communications, Sept. 2022.
- [8] D. Cabric, Invited speaker, “UAV swarm enabled communications: System Design for Spectrum and Energy Efficiency with Security Considerations”, at STATOS 2022, Aug. 2022.
- [9] D. Cabric, Invited speaker, “Wideband mm-Wave Beam Training with True-Time-Delay Array Architectures”, at IEEE RFIC workshop on “Large-Scale Antenna Arrays: Circuits, Architectures, and Algorithms”, June 2022.
- [10] D. Cabric, Distinguished Seminar Speaker, “Ultra-Low-Latency Millimeter Wave Networking using True-Time-Delay Array Architecture”, North Carolina State University, Mar. 2022.
- [11] D. Cabric, Invited Panelist, “Leveraging NVIDIA Omniverse for simulation and collaboration for a variety of wireless communication use cases”, in NVIDIA’s GTC conference, March 2022.
- [12] D. Cabric, Distinguished Seminar Speaker, “Exploiting Abundance Millimeter Wave Spectrum for Low Latency Communications and Massive Connectivity Beyond 5G”, Princeton, Feb. 2022.
- [13] D. Cabric, Invited Panelist, “Transcending layers: Crossing the divide between lower and upper layers”, in NSF Networking and Telecommunication Systems (NeTS) Researchers, January 2022.
- [14] D. Cabric, **Keynote speaker**, “Ultra-Low-Latency Millimeter Wave Networking using True-Time-Delay Array Architecture”, in IEEE Computing and Communication Workshop and Conference (CCWC), virtual, January 2022.
- [15] D. Cabric, Distinguished Seminar Speaker, “Exploiting Abundance Millimeter Wave Spectrum for Low Latency Communications and Massive Connectivity Beyond 5G”, UC Berkeley, Dec. 2021.
- [16] D. Cabric, Invited Talk, “Open Set Wireless Transmitter Authorization: Deep Learning Approaches and Practical Considerations”, in IEEE COMSOC Special Interest Group for AI and Machine Learning in Security, November 2021.
- [17] D. Cabric, Invited Panelist, “Shattering siloed spectrum sharing mechanisms for future NRDZ”, in NSF sponsored workshop on NRDZ partnership, November 2021.
- [18] D. Cabric, “Accelerating Millimeter-Wave Beam Alignment with Machine Learning and True-Time-Delay Arrays”, SRC JUMP E-workshop, November 2021.
- [19] D. Cabric, Invited Talk, “UAV Swarms for Communications: From Remote Locations to Smart Cities”, SRC/JUMP CONIX annual review, Sept. 2021.
- [20] D. Cabric, **Keynote speaker**, “Ultra-Low-Latency Millimeter Wave Networking using True-Time-Delay Array Architecture”, in IEEE BalkanCom, Novi Sad, Sept. 2021.
- [21] D. Cabric, Invited speaker, “Energy efficiency analysis of MIMO systems at 100-300GHz”, at IEEE RFIC workshop on “100-300GHz mm-wave wireless for 0.1-1Tb/s networks”, June 2021.
- [22] D. Cabric, Invited talk, “Deep Learning Approaches for Blind Signal Decoding and Transmitter Authentication using RF Samples”, Northrop Grumman, Dec. 2020.
- [23] D. Cabric, Academia Lecture, “Accelerating Millimeter-Wave Beam Alignment with Machine Learning assisted Compressive Sensing and True-Time-Delay Arrays”, Qualcomm, Oct. 2020.

- [24] D. Cabric, H. Yan, **Tutorial**, “Millimeter-wave beam management for 5G-NR and beyond,” presented at IEEE Vehicular Technology Conference - Fall, Oct. 2020.
- [25] D. Cabric, H. Yan, **Tutorial**, “Millimeter-wave beam management for 5G-NR and beyond,” presented at IEEE Global Communications Conference (Globecom), Dec. 2019.
- [26] D. Cabric, **Keynote speaker**, “Learning Shared Spectrum Occupancy: Wireless Networks Footprints, Topologies, and Radio Fingerprints”, in “Machine Learning for Wireless Communications, Networking, and Security” in IEEE GlobalSIP 2019, Ottawa, Nov. 2019.
- [27] D. Cabric, “Distributed Communications and Sensing with UAV Swarms”, SRC JUMP E-workshop, June 2019.
- [28] D. Cabric, “Interplay of Communications, Sensing and Computing in Future Wireless Edge Networks”, SRC JUMP Scientific Advisory Board meeting, Analog Devices, Boston, April 2019.
- [29] D. Cabric, “Learning Shared Spectrum Occupancy: Wireless Networks Footprints, Topologies, and Radio Fingerprints”, ECE Department, UC Irvine, March 2019.
- [30] D. Cabric, IEEE ComSoc Distinguished Lecture, “Physical Layer Millimeter-Wave Communications”, University of Utah, Salt Lake City, November 2018.
- [31] D. Cabric, **Keynote speaker**, “Revisiting Spectrum Sharing Techniques for Unlicensed Massive IoT”, CROWNCOM 2019, Ghent, Belgium, September 2018.
- [32] D. Cabric, JUMP/CONIX center Annual Review, “Future Wireless Systems”, Carnegie Mellon University, Pittsburg, September 2018.
- [33] D. Cabric, “5G Millimeter-Wave Communications”, T-Mobile, Seattle, July 2018.
- [34] D. Cabric, IEEE ComSoc Distinguished Lecture, “Physical Layer Millimeter-Wave Communications”, Tektronix, Portland, June 2018.
- [35] D. Cabric, IEEE ComSoc Distinguished Lecture, “Physical Layer Millimeter-Wave Communications”, Microsoft, Seattle, June 2018.
- [36] D. Cabric, IEEE ComSoc Distinguished Lecture, “Physical Layer Millimeter-Wave Communications”, University of British Columbia, Vancouver, June 2018.
- [37] D. Cabric, **Plenary talk** “Learning Wireless Networks’ Footprints and Topologies in Shared Spectrum”, IEEE International Conference on Computing, Networking and Communications (ICNC), March 2018.
- [38] D. Cabric, “Channel Tracking in mmWave MIMO System”, in mmNets’17 workshop at MobiCom’17, October 2017.
- [39] D. Cabric, Invited Panelist, “How relevant is Communication Theory to Spectrum Policy? – Should communication theorists be more involved in policy debates or leave this for the lawyers?”, IEEE Communication Theory Workshop, June 2017.
- [40] D. Cabric, “Wideband Spectrum Sensing and Blind signal classification”, Raytheon, El Segundo, May 2017.
- [41] D. Cabric, “Localization in Cognitive Radio Networks”, ECE Department seminar, UC Riverside, April 2017.
- [42] D. Cabric, **Keynote talk** “Localization in Cognitive Radio Networks”, International Conference on Localization and GNSS, Barcelona, Spain, June 28, 2016.
- [43] D. Cabric, “Blind signal classification”, CERDEC, Auberline Proving Grounds, Baltimore, December 2015.
- [44] D. Cabric, “A Cognitive Radio Approach for Improving Wireless Networks Co-existence”, Cisco Inc., November 2013.
- [45] D. Cabric, “Energy Efficient Wideband Spectrum Sensing and Modulation Classification”, University of California San Diego, April 2013.

- [46] D. Cabric, "Energy Efficient Wideband Spectrum Sensing and Modulation Classification", University of Southern California, April 2013.
- [47] D. Cabric, "Spatio-Temporal Spectrum Sensing using Distributed Antenna Systems and Direct Localization Methods", *IEEE Antennas and Propagation Symposium*, July 2012.
- [48] D. Cabric, "Spatio-Temporal Spectrum Sensing for Cognitive Radio Networks", University of Minnesota, March 2012.
- [49] D. Cabric, "Spatio-Temporal Spectrum Sensing for Cognitive Radio Networks", University of Illinois Urbana-Champaign, March 2012.
- [50] D. Cabric, "Modulation Classification for Cognitive Radios", Aerospace Corp, El Segundo, April 2011.
- [51] D. Cabric, "Cooperative Localization of Primary Users by Directional Antennas or Antenna Arrays Challenges and Design Issues", *IEEE Antennas and Propagation Symposium*, July 2011.
- [52] D. Cabric, "Spectrum Sensing: From Theory to Implementation", Ericsson Research, San Jose, April 2011.
- [53] D. Cabric, **Invited tutorial** "Signal Processing Approaches for Spectrum Sensing: Theory and Implementation", *IEEE RFIC/IMS*, June 2011.
- [54] D. Cabric, Invited Panelist "Software-Defined Radios: How much programmability do we really need?", *IEEE WICON*, November 2008.
- [55] D. Cabric, "A System Perspective on Cognitive Radio Design: Spectrum Sensing Case Study", *IEEE Signal Processing Symposium Benelux Chapter*, December 2008.
- [56] D. Cabric, "Spectrum Sharing and Sensing: System Design Perspective", University of California San Diego, April 2007.
- [57] D. Cabric, "Spectrum Sharing and Sensing: System Design Perspective", University of California Santa Barbara, April 2007.
- [58] D. Cabric, "Spectrum Sharing and Sensing: System Design Perspective", Princeton, March 2007.
- [59] D. Cabric, "Spectrum Sharing and Sensing: System Design Perspective", University of California Los Angeles, March 2007.
- [60] D. Cabric, "Spectrum Sharing and Sensing: System Design Perspective", University of Pennsylvania, March 2007.
- [61] D. Cabric, "Spectrum Sharing and Sensing: System Design Perspective", Columbia, March 2007.
- [62] D. Cabric, "Spectrum Sharing and Sensing: System Design Perspective", University of Texas Austin, March 2007.
- [63] D. Cabric, "Spectrum Sharing: System Design Perspective", University of Southern California, December 2006.
- [64] D. Cabric, **Plenary talk** "Novel Radio Architectures for UWB, 60 GHz and Cognitive Wireless Systems", *CMOS Emerging Technology Workshop*, July 2006.
- [65] D. Cabric and A. Sahai, **Tutorial** "Spectrum Sensing: Fundamental Limits and Practical Challenges", *IEEE DySPAN*, November 2005.
- [66] D. Cabric, "Physical Layer Design Issues Unique to Cognitive Radio Systems", Philips Research, Eindhoven, Netherlands, June 2005.