Curriculum Vitae

ANDREAS F. MOLISCH

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SUMMARY

- *Research*
  - Contributions to multiple areas of wireless communications (wireless propagation, multi-antenna systems, ultrawideband systems and localization; novel modulation methods, wireless video distribution and edge computing, radar and wireless sensing)
  - Fellow of National Academy of Inventors, Fellow of AAAS, Fellow of the IEEE, Fellow of IET, Fellow of URSI, Fellow of AAIS, Member of Austrian Academy of Sciences,
  - Extensive publications: 5 books, 330 journal papers, 85,000 citations, h-index 121
  - 80 patents granted and 5 pending; 80 standards contributions; with major impact on wireless industry
- *Project leadership*
  - Built up and led teams in multiple industrial research labs and academia
  - At USC since 2009, acquired more than US$ 20 million for my group (plus more than US$ 4 million pending)
- *Teaching* and continuous education contributions:
  - Widely used textbook for wireless communications
  - Graduated 25 PhD students (6 ongoing), mentored 16 PostDocs and numerous masters students
  - More than 30 tutorials at international conferences
- *International Service/leadership:*
  - Chair of several international standardization groups (both industrial and academic)
  - Active as editor, conference chair, etc.

CONTENTS OF CV

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1. EMPLOYMENT HISTORY

UNIVERSITY OF SOUTHERN CALIFORNIA, Viterbi School of Engineering, Los Angeles, CA, USA

Solomon-Golomb – Andrew-and-Erna-Viterbi Chair Professor, Dept. El. Eng.	2016 – current
Full Professor, Department of Electrical Engineering,	2009 – current
Head, Wireless DEvices and Systems (WiDES) Group	2009 – current
(Co-)Director, Communication Sciences Institute	2011 – 2016

Research areas: channel measurement/modeling, MIMO systems, UWB systems, cooperative communications, wireless video distribution systems, mm-wave transmission systems, edge computing/caching, machine learning, wireless sensing and radar

MITSUBISHI ELECTRIC RESEARCH LAB, Cambridge, MA, USA

Chief Wireless Standards Architect	2007 – 2008
Distinguished Member of Technical Staff	2006 – 2008
Senior Principal Member of Technical Staff	2002 – 2006

scientific (team) leader for digital communications and networking
Research areas: cooperative communications, UWB systems, MIMO systems, mobile radio channels

LUND UNIVERSITY, Lund, Sweden

Professor for Radio Systems, Department of Electroscience	2002 – 2008
(unpaid position in parallel to activities at Mitsubishi Electric Research Labs)	

Research areas: channel measurement and modeling

AT&T LABS – RESEARCH CENTER, Middletown, NJ

Principal Member of Technical Staff;	2001 – 2002
Research areas: MIMO systems, mobile radio channels, wireless wideband systems.	
Guest Researcher;	2000
Research area: MIMO-OFDM.	

FTW RESEARCH CENTER FOR TELECOMMUNICATIONS, Vienna, Austria

Key Researcher	1999-2000
(on one-year leave from TU Vienna); primarily responsible for creation of the mobile radio group.	
Research areas: smart antennas at the mobile station, third-generation mobile radio systems.	

TECHNICAL UNIVERSITY VIENNA, Vienna, Austria

Institut fuer Nachrichtentechnik und Hochfrequenztechnik (INTHF)

Head; "Mobile Radio Air Interface" group;	1997-2000
Associate Professor; mobile radio group	1999-2000
Assistant Professor; mobile radio group	1995-1999
Research Assistant; mobile radio group, laser spectroscopy group, applied electronics group	1989-1995

Research areas:
(i) error probability in TDMA systems, mobile radio channels, OFDM, smart antennas.
(ii) modeling and simulation of atomic line filters, radiation trapping.
(iii) applied electronics group: simulation of surface acoustic wave filters.

2. EDUCATION

TECHNICAL UNIVERSITY VIENNA, Vienna, Austria

Habilitation Degree (~ D.Sc.) in Mobile Communications; 1999
Habilitation Thesis: „Bit Error Probability of Cordless Telephones in Time-Dispersive Environments".

Dr. techn. (=Ph.D.) in Electrical Engineering with Highest Honors; 1994
Doctoral Dissertation: „Modeling and Simulation of Lamp-Pumped Thallium Atomic Line Filters".

Dipl. Ing. (~M. Sc.) in Electrical Engineering with Highest Honors 1990
Thesis: „Solution of Electromagnetic Boundary Value Problems by the Wiener-Hopf Technique".

3. MAJOR AWARDS

2026 ***USC Associates' Award*** (highest honor of the university for research/scholarship)
2019-current ***Highly Cited Researcher*** in each of these years (top ~0.1%, as determined. by Publons –Clarivate)
2025 *Propagation Award* of the *European Antenna and Propagation Society* (highest technical award for propagation research by EuAPS)
2025 A1 Invention Award, Samsung Research America
2024 Elected *Fellow of the International Artificial Intelligence Industry Alliance (AIIA)*
2024 IEEE INFOCOM Test of Time Paper Award (for 2012 paper on femtocaching)
2024 Elected ***Fellow of the Academy of Artificial Intelligence Sciences (AAIS)***, formerly AAIA
2022 *Neal Shepherd Memorial Award* of the IEEE Vehicular Technology Society
2022 *Best journal paper award* from IEEE ComSoc Multimedia Technical Committee
2021 *IEEE ComSoc Wireless Technical Committee Recognition Award*
2021 *Best Tutorial Paper Award from IEEE ComSoc*
2019 *IEEE ComSoc Radio Communications Committee Technical Recognition Award*
2019 ***Fellow of International Union of Radio Science (URSI)***
2019 *Leonard G. Abraham Prize* (award for best paper in IEEE JSAC)
2018 ***Edwin H Armstrong Award*** (highest technical achievement award of IEEE Communications Society)
2018-19 *IEEE Distinguished Lecturer* (Communications Society)
2017 ***IET Achievement Medal*** for contributions to wireless communications
2015 ***Fellow of the National Academy of Inventors***
2015 *Viterbi Award for Use-Inspired Research*
2015 *Neal Shepherd Memorial Award* of the IEEE Vehicular Technology Society
2013 *Puskas Tivadar Award* of the Hungarian Scientific Association for Infocomm (HTE)
2013 ***Fellow of the AAAS*** (American Association for the Advancement of Science)
2012 ***Eric Sumner Award of the IEEE*** (Technical Field Award for communications of IEEE)
2011-15 *IEEE Distinguished Lecturer* (IEEE Vehicular Technology Society)
2011 Elected ***Member of the Austrian Academy of Sciences***
2011 *Donald G. Fink Prize Paper Award* of the IEEE
2011 *Distinguished Service Award* of the Radio Communications Committee of the IEEE
2010 *James Evans Avant-Garde Award* of IEEE Vehicular Technology Society
2010 *Okawa Research Grant*, Okawa Foundation
2010 *Honorary Guest Professor*, Beihang University, Beijing, China
2009 *Wireless Educator of the Year* award from Global Wireless Education Consortium (GWEC)
2008 Elected ***Fellow of the IET (formerly IEE)***
2007-08 *IEEE Distinguished Lecturer* (IEEE Communications Society)
2007 *Hatsuhon-Award* of Mitsubishi Electric (for contributions to wireless standards)
2006 *Neal Shepherd Memorial Award* of the IEEE Vehicular Technology Society
2005 Elected ***Fellow of the IEEE***
2001 *INGVAR award* of the Swedish Strategic Research Foundation (for work on propagation channels)
1999 *Kardinal-Innitzer-Award* (for the work on unequalized mobile radio systems).

4. TEACHING AND MENTORING

4.1 TEXTBOOK WRITING

A. F. Molisch, "Wireless Communications"
First edition: Sept. 2005, IEEE Press - Wiley.
Second edition: Jan. 2011, IEEE Press –Wiley.
Third edition (From Fundamentals to Beyond 5G): Jan. 2023, IEEE Press – Wiley.
Chinese translation first edition: PHEI (Publishing House of the Electronic Industry)
Chinese translation second edition: Electronics Industry Press

4.2 COURSES

USC: "Wireless Communications (EE 535)", "Communication Theory (EE 564)", "Advanced Wireless Communications (EE 599/EE635)", Linear Systems (EE 301L), Probability and statistics (EE 364), Probability for ECE (EE 503)

Lund University: "Radio Systems" (with O. Edfors); "Wireless Propagation Channels" (with F. Tufvesson); "MIMO systems" "Smart antennas for mobile communications"; "Seminar smart antennas" (with O. Edfors and Univ. Ronneby)

Technical University Vienna: "Mobile Communications" (with E. Bonek); "Smart antennas for mobile communications"; "Design of microwave circuits" Labs exercise; "Seminar in Mobile communications" (with E. Bonek and H Weinrichter),

4.3 ADVISING OF PH.D. STUDENTS

Main Advisor: 25 finished doctoral theses:

- *Bassel A. A. Modad*, 2026
- *Zihang Cheng*, 2026
- *Thomas Choi.* 2025
- *Guillermo Castro,* 2024
- *Hussein Hammoud,* 2024
- *Jorge Gomez-Ponce*, 2022
- *Yang Cai,* 2022
- *Ming-Chun Lee*, 2020
- *Daoud Burghal*, 2019
- *Rui Wang*, 2018
- *Zheda Li*, 2018
- *Vishnu Ratnam* 2018
- *Umit Bas*, 2018
- *Seun Sangodoyin*, 2018
- *Sundar Aditya*, 2018
- *Hao Feng*, 2017
- *Vinod Kristem*, 2017
- *Joonheong Kim*, 2014
- *Junyang Shen*, 2013
- *Alayon Glazunov*, 2009
- *Shurjeel Wyne*, 2009
- *Johan Karedal*, 2009
- *Peter Almers*, 2007
- *Martin Toeltsch*, 2002
- *Martin Steinbauer*, 2001

6 doctoral theses currently under advisement at USC

Second advisor (opponent, examiner):
28 doctoral theses: *Zhao*, Helsinki University of Technology, *B. Negash Getu*, Aalborg Univ., *W. Weichselberger*, TU Vienna, *C. M. Tan*, Bristol University, *H. Oeczelik,* TU Vienna, *H. T. Nguyen*, Aalborg University, *S. Wang*, NJIT, *S. Gezici*, Princeton University, *A. Osseiran*, KTH, *R. Yim*, Harvard University, *H. Hofstetter*, TU Vienna, *N. Devroye*, Harvard University, *T. Meng,* Nanyang Techn. Univ., *R. Merz*, EPFL, *G. Atia,* Boston Univ., *S. Fickar*, TU Vienna, *R. Nikjah,* University of Alberta, *X. Mao*, Nanyang Techn. Univ., *S. Kashyap,* Indian Institute of Science, *A. Roivainen*, Oulu University, *G, Narimani*, University of Canterbury, *F, Sohrabi*, University of Toronto, *F. Sheik,* University of Duisburg-Essen, *N. H. Ranchagoda*, RMIT University (Australia), *M. Barzegar Khalilsarai,* TU Berlin, *A. Matos Pessoa* (Universidade Federal do Ceara, Brazil), *A. Pfadler* (TU Berlin), *F. Jaensch* (TU Berlin)

Member of Examination Committee: >50 theses at USC

4.4 ADVISING OF MASTERS STUDENTS

At USC, advising of typically 10-15 MS students (directed research, student research workers) per semester (some are advised over multiple semesters). For partial list of current and former advisees, see https://wides.usc.edu/#people.

4.5 POSTDOC MENTORING

PostDocs in my group at USC ("p" indicates partial financial support from home university, "f" indicates full financial support by home university)

- Naveed Abbasi 2018-current
- Jorge Gomez-Ponce 2022-2024, 2026-current
- Ferdous Pervej 2023-2025
- Lei Chu (p) 2021-2024
- Juhyung Lee 2022-2025
- Minseok Choi (p) 2019-2020
- Francois Rottenberg (p) 2018-2019
- Shengqian Han (f) 2015-2016
- Aki Karttunen (p) 2015-2016
- Olivier Renaudin 2014-2016
- Seok-Chul Kwon (f) 2014-2015
- Tingting Zhang (f) 2012-2014
- Somasundaram Niranjayan 2011-2013
- Yafei Tian (f) 2010-2011
- Arjan Meijerink (f) 2010
- Jussi Salmi 2009-2010

4.6 TUTORIALS

More than 30 tutorials, most of them at international IEEE conferences (for details, see list of publications, Sec. 7.7)
"Measurement and simulation of spatial mobile radio channels"
"Spatial channels (including MIMO)"
"Ultrawideband propagation channels"
"Smart antennas in mobile communications"
"MIMO systems"
"Ultrawideband systems"
"IMT-Advanced Systems"
"Measurement and modeling of mm-wave and THz propagation channels"
"Joint compute-caching-communication"
"Machine-learning based localization"

5. PROFESSIONAL ACTIVITIES AND AFFILIATIONS

5.1 MAJOR INDUSTRIAL AND ACADEMIC BODIES

Chair:

- IEEE P1944 Standardization group 2023-current
- Special Interest group on Channel Modeling, IEEE ComSoc RCC 2019-2022
- Channel modeling group of 5G mmWave (later NextG) Channel Model Alliance 2016-current
- Awards Committee, Communications Society of the IEEE 2012 -2013
- Radio Communications Committee, Communications Society of the IEEE 2009 -2010
- IEEE 802.16m ad-hoc group on channel modeling 2007
- International Union of Radio Scientists, Commission C (Signals and Systems) 2005-2008
- Eureca (Enhanced Ultrawideband Ranging and Extended Communications Alliance) 2005
- MBOA (Multiband-OFDM Alliance) scalability group 2003-2005
- IEEE 802.15.4a subgroup on channel modeling 2002-2004
- COST 273 working group on MIMO channels 2001-2005

Vice Chair

- IEEE ComSoc PNGW Technical Working Group 2026 - current
- IEEE Radio Communications Committee SIG on propagation channels 2022-2026
- Radio Communications Committee, Communications Society of the IEEE 2007-2008
- International Union of Radio Scientists, Commission C (Signals and Systems) 2002-2005

Member of Professional Society Governing Bodies

* IEEE APS Propagation and Scattering Technical Committee 2025 - current
* IEEE Radio Communications Committee Awards Board 2025-2026
* IEEE ComSoc Standards Development Board 2024 – current
* IEEE Vehicular Technology Society Fellows Committee 2020
* IEEE Press editorial board 2017 - 2022
* IEEE Vehicular Technology Society Fellows Committee 2010 - 2015

Member of Standardization Bodies

- IEEE ComSoc Standards Development Board 2022-current
- Mm-wave 5G Special Interest Group 2014-2015
- IEEE 802.11.n: high throughput wireless LANS 2003-2007
- IEEE 802.15.4a: low-data rate Personal Area Networks 2002-2008
- IEEE 802.15.3a: high data rate Personal Area Networks 2002-2004
- 3GPP:: spatial channel modeling group 2001-2003

5.2 RESEARCH FUNDING ORGANIZATIONS:

Reviewer and panel member

- National Science Foundation (USA)
- European Union
- Canadian Research Council
- German Research Foundation (DFG)
- Norwegian Research Council
- Swedish Research Foundation
- Austrian Science Foundation
- Chilean Research Foundation

5.3 JOURNALS

Editor

- IEEE J. Selected Topics in Electromagnetics, Antennas Prop. (JSTEAP), *Senior Editor* 2024 - current
- Journal of Communications and Networking: *Division Editor* for Wireless Comm. 2012-current
- IEEE Trans. Wireless Communications: *Area Editor* for Antennas and Propagation 2009-2014
- IEEE Trans. Wireless Communications: *Associate Editor* 2000-2009

Guest Editor

- Guest co-editor of Special Issue of ChinaComm on 5G 2019
- Guest co-editor on Focus Topic of IEEE Comm Mag on 5G channels 2018
- Guest co-editor of special issue of IEEE JSAC on 5G Deployment and testbeds 2017
- Guest co-editor of special issue of IEEE Vehicular Techn. Mag. On propagation channels 2011
- Guest co-editor of special issue of Proceedings of the IEEE on Ultrawideband 2009
- Guest co-editor of special issue of IEEE JSAC on Ultrawideband 2006
- Guest co-editor of a special issue of Int. J. WCMC on smart antennas and MIMO systems 2003

Member of editorial board

- IEEE Signal Processing E-letter 2005-2006

Reviewer: about 20 reviews per year for the following journals

Nature Communications; IEEE Trans. Wireless Comm., IEEE Trans. Vehicular Techn; IEEE Trans. Comm.; IEEE J. Selected Areas Comm.; IEEE Trans. Antennas Prop.; Proc. IEE - Radar, Sonar, and Navigation; IEE Electronics Letters.; IEEE Communication Letters.; IEEE Trans. Signal Processing.; IEEE Signal Processing Letters; IEEE Trans. Information Theory; Kluwer Journal on Personal Wireless Communications.; Proc. IEICE (Japan); European Transactions on Telecommunications; International Journal of Modeling and Simulation; Research Letters in Signal Processing, IEEE Communications Magazine; IEEE Antennas and Propagation Letters; IEEE Transactions on Broadcasting; IEEE Trans. Microwave Theory and Techn., Int. J. Comm. Systems, IEEE Transactions on Aerospace and Electronic Systems, IET Signal Processing, Journal of Electrical and Computer Engineering

5.4 INTERNATIONAL CONFERENCES

General chair

- Chinacom 2008
- IEEE International Conference on Ultrawideband 2006

Chair of the Technical Program Committee

- Global Symposium on Millimeter Waves (GSMM) 2018
- IEEE Int. Conf. Comm. (ICC) 2013
- IEEE Int. Conf. Comm. China (ICCC) 2012
- International Workshop On Wireless Network Measurement (WinMee) 2011 2011
- IEEE Workshops Int. Conf. Comm. (ICC) 2010
- Communication Theory Workshop 2009
- Chinacom 2007

Vice-chair of the Technical Program Committee

- IEEE VTC 2010 spring 2010
- IEEE VTC 2005 spring 2005

Symposium (Co)-Chair

- Channel models for 5G and B5G at *IEEE Globecom* 2020
- 5G Networks *at IEEE ICC* 2014
- Wireless Communications Symposium at *IEEE Globecom* 2007
- MIMO Symposium at *Int. Wireless Communications & Mobile Computing Conference* 2006
- Wireless Communications and Networking Symposium at *ChinaCom* 2006

Steering Committee of Conference Series:

IEEE Int. Conf. Comm. China 2013-current
IEEE Int. Conf. Ultrawideband 2006-current

Member of the Technical Program Committee, Session organizer and session chair for numerous international conferences in the communications, antenna, and vehicular technology area.

Reviewer: about 30 reviews per year for conferences like
IEEE Globecom; IEEE ICC; IEEE VTC; IEEE PIMRC; IEEE WCNC, IEEE ISIT, and many others.

5.5 ADVISORY BOARDS

- Vinnova Advanced Connectivity (Sweden, funded by Vinnova) – International Advisory Board 2025-current
- xG-Research and Innovation Cluster (Germany, funded by DFG) – Academic Advisory Board 2022-current
- Cohere Technologies, Scientific Advisory Board 2017-current

6. PAST AND CURRENT FUNDING AT USC (since 2009)

Sponsored Projects: **$ 17,473,000 awarded; $ 4,035,000 pending**

Gifts: $ 2,626,000 awarded

All funding numbers refer to the *funding brought to my group, i.e., only my share of the award* (in case there were multiple PIs). Total budgets of the involved projects is more than $50 M.

6.1 PAST AND CURRENT SPONSORED PROJECTS

Title: CIF: Medium: Collaborative Research: Cooperative routing in wireless ad- hoc networks with advanced PHY layers: interference management, resource allocation, and information mixing
Source of Support: National Science Foundation
Role: Lead PI
Total Award Period Covered: 05/01/2010 – 4/30/2014

Title: Cooperative Monolithic Distributed Sensors for Localization and Characterization of EM Sources over an Ultra-wide Bandwidth in Complex Multi-Path Environments
Source of Support: Office of Navel Research
Role: Co-PI
Total Award Period: 10/1/10-3/31/14

Title: Network Localization and Navigation in GPS-Challenged Environments
Source of Support: Massachusetts Institute of Technology (subcontract from ONR)
Role: Lead PI (Co-PI of the ONR project)
Total Award Period: 2/15/2011 to 2/14/2014

Title: Channel Modeling for Peer-to-Peer Communications
Source of Support: InterDigital
Role: Sole PI
Total Award Period: 6/01/2011 to 11/30/2013

Title: DURIP: Ultra-wideband MIMO Channel Sounder for Distributed Electronic Warfare Applications
Source of Support: Office of Naval Research
Role: Lead PI
Total Award Period: 9/1/2011-12/31/2012

Title: MRI: Development of measurement and testing equipment for distributed wireless communications and localization systems and propagation channels
Source: National Science Foundation
Role: Lead PI
Total Award Period: 9/1/2011 to 8/31/2015

Title: 3D Channel Measurements and Modeling for Advanced Antenna Systems
Source of Support: Samsung Electronics Company
Role: Sole PI
Total Award Period: 10/13/12 – 2/03/15

Title: Reduced-Complexity Receivers for Ultrawideband Communications
Source of Support: King Abdulaziz City for Science and Technology
Role: Sole PI
Total Award Period Covered: 1/1/2014 to 12/31/2018

Title: CIF: Small: Communication Theory Foundations and System Optimization of Femto-Caching and D2D Networks for Wireless Video
Source of Support: NSF
Role: Lead PI / Sole PI (after co-PI moved outside the US)
Total Award Period Covered: 08/01/14 – 07/31/18

Title: Vehicle-to-Vehicle Communications in Mixed Passenger – Freight Convoys
Source of Support: CA – Department of Transportation
Role: Sole PI
Total Award Period Covered: 01/1/15 – 12/31/15

Title: WiFiUS: Device-to-Device Communications at Millimeter-Wave Frequencies
Source of Support: NSF (and Academy of Finland)
Role: Sole PI (of US part – this was a joint project with a Finnish partner)
Total Award Period Covered: 02/1/15 – 1/31/19

Title: HERMES – Hyper-Wideband Enabled RF Messaging
Source of Support: Northrop Grumman Corporation
Role: Sole PI
Total Award Period Covered: 07/20/15-07/20/16

Title: Fundamentals of Wireless Communication Systems Using Orbital Angular Momenta

Source of Support: NSF
Role: Lead-PI
Total Award Period Covered: 9/1/2015 – 8/31/19

Title: CIF Small: Massive MIMO in the MM-Wave Range: The Theory of Making it Practical
Source of Support: NSF
Role: Sole PI
Total Award Period Covered: 9/1/2016 – 8/31/21

Title: Propagation channel models and system performance for device-to-device communications for public safety applications
Source of Support: NIST
Role: Sole PI
Total Award Period Covered: 06/01/2017-05/31/2021

Title: Collaborative Research: Stochastic Geometry Meets Channel Measurements: Comprehensive Modeling, Analysis, and Fundamental Design-tradeoffs in Real-world Massive-MIMO Networks
Source of Support: NSF
Role: Co-PI
Total Award Period Covered: 09/01/2017-08/31/2021

Title: Channel Sounding and Modeling in the MM-Wave Frequency Range
Source of Support: NIST
Role: Co-PI
Total Award Period Covered: 10/01/2017-09/30/2018

Title: ComSenTer: A Center for Converged TeraHertz Communications and Sensing
Source of Support: Univeristy of California Santa Barbara (subcontract from Semiconductor Research Corporation/DARPA)
Role: investigator (invited to join after the project was approved)
Total Award Period Covered: 04/01/2018-12/31/2022

Title: Measurement and Modeling of Broadband Millimeter Wave Signal Propagation Between Intelligent Vehicles
Source of Support: US – Department of Transportation
Role: Sole PI
Total Award Period Covered: 08/15/2018-08/14/2019

Title: NeTS: Small: Optimal Delivery of Augmented Information Services Over Next- Generation cloud Networks
Source of Support: NSF
Role: Sole PI
Total Award Period Covered: 10/1/2018 – 09/30/2021

Title: CIF: Small: Precision Measurement and Modeling of Dynamic Millimeter-wave Wireless Propagation Channels
Source of Support: NSF
Role: Sole PI
Total Award Period Covered: 10/1/2019 to 09/30/2022

Title: Quasi-deterministic modeling of mm-wave propagation channels
Source of Support: NIST
Role: Sole PI
Total Award Period Covered: 10/1/2019-9/30/2020
Location of Project: University of Southern California

Title: Collaborative Research: DroTerNet: Coexistence between Drone and Terrestrial Wireless Networks
Source of Support: NSF
Role: Co-PI
Total Award Period Covered: 10/1/2019 - 09/30/2022

Title: Localization Based on Machine Learning
Source of Support: TAQNIA Defense and Security Technologies (DST)
Role: Sole PI
Total Award Period Covered: 1/17/2020 – 2/21/2023

Title: Dynamic Directional mm-Wave Channel Measurements for Warfighter Communications
Source of Support: DARPA/ SRC
Role: Sole PI
Total Award Period Covered: 07/01/2020-06/30/2021

Title: CIF: Small: Machine Learning for Wireless Propagation Channels
Source of Support: NSF
Role: Lead PI
Total Award Period Covered: 10/1/2020 – 09/30/2023

Title: SII Planning: ARIES: Center for Agile, RelIablE, Scalable Spectrum
Source of Support: Virginia Tech / NSF
Role: Co-PI
Total Award Period Covered: 08/01/2020-07/31/2021

Title: Signal Processing for B5G/6G
Source of support: KDDI Research
Role: Sole PI
Total Award Period covered: 09/2020-08/2023

Title: (Supplement) Precision Measurement and Modeling of Dynamic
Millimeter-wave Wireless Propagation Channels
Source of support: National Science Foundation
Role: Sole PI
Total Award Period covered: 0.8/2021-07/2023

Title: ASCENT : Ultra-high Throughput Neural Recording using Flexible, Polymer-based Shanks as Terahertz Dielectric Waveguides
Source of support: National Science Foundation
Role: Co-PI
Total Award Period covered: 09/2021-08/2026

Title: Frequency dependence of propagation channels in the mmwave/THz regime
Source of support: National Institute of Standards and Technology
Role: Sole PI
Total Award Period covered: 09/2021-08/2022

Title: Enabling Joint Communications and Sensing in Cellular Vehicular Communications using Standards-Compliant Waveforms
Source of support: General Motors
Role: Sole PI
Total Award Period covered: 10/2021-09/2022

Title: Localization in Millimeter Wave Cellular Networks: Fundamentals, Algorithms, and Measurement-inspired Simulator
Source of Support: National Science Foundation
Role: Co-PI
Total Award Period covered: 10/2021-09/2025

Title: NSF-IITP: CNS Core: Small: Federated Learning for Privacy-preserving Video Caching Network
Source of Support: National Science Foundation (and Korean agency IITP)
Role: Sole PI (of the US part – there are Korean partners)
Total Award Period covered: 01/2022-12/2025

Title: NSF-AoF: Impact of user, environment, and artificial surfaces on above-100 GHz wireless communications
Source of Support: National Science Foundation (and Academy of Finland)
Role: Sole PI of the US part (there are Finnish partners)
Total Award Period covered: 01/2022-12/2025

Title: Mm-wave measurements and evaluations for next generation warfighter localization
Source of Support: DARPA/SRC
Role: Sole PI
Total Award Period covered: 01/2022-12/2022

Title: Deep-learning-based radio channel prediction for vehicle-to-vehicle communications
Source of Support: METRANS/CalTrans
Role: Sole PI
Total Award Period covered: 06/2023-05/2024

Title: RINGS: Resilient delivery of real-time interactive services over NextG
compute-dense mobile networks
Source of Support: National Science Foundation
Role: Lead PI
Total Award Period covered: 09/2022-08/2025

Title: Clutter Mitigation strategies in Cellular Joint Communication and Radar
Sensing University of Southern California
Source of Support: General Motors
Role: Sole PI
Total Award Period covered: 10/2022-09/2023

Title: SWIFT: Opportunistic mm-Wave Receivers
Source of Support: National Science Foundation
Role: Co-PI
Total Award Period covered: 01/2023-12/2026

Title: CIF: Small: Impact of radiation trapping on sensing and communication systems in the THz, infrared, and optical regime – foundations, challenges, and opportunities
Source of Support: National Science Foundation
Role: Lead PI
Total Award Period covered: 10/2023-09/2027

Title: Implementation Aspects of Cellular Joint Communication and Radar Sensing
Source of Support: General Motors
Role: Sole PI
Total Award Period covered: 02/2024-12/2024

Title: Clean
Source of support: Government agency (details are confidential)
Role: Co-PI
Total Award Period covered: 5/2024-10/2026

Title: NewSpectrum: Interference from terrestrial cellular systems to satellites: Measurement, modeling, and effective mitigation strategies
Source of Support: National Science Foundation
Role: Lead PI
Total Award Period covered: 01/2025-12/2027

Title: Next-Generation Radar with Enhanced Information Extraction and Resolution Utilizing Advanced Spatially Structured Electromagnetic Waves
Source of Support: DARPA
Role: Lead PI
Total Award Period covered: 03/2025-11/2026

Title: Cellular Joint Communication and Radar Sensing: Information Fusion and Experimental Investigation
Source of Support: General Motors
Role: Sole PI
Total Award Period covered: 04/2025-12/2025

Title: Integrating Communication and Sensing: Connecting the Cyber-Physical World
Source of Support: Australian Research Council
Role: Abroad PI
Total Award Period covered: 01/2026-12/2028

Title: CIF: Medium: Ultrawideband Communications and Sensing with True Time Delay Arrays in the Upper Midband
Source of Support: National Science Foundation
Role: co-PI
Total Award Period covered: 02/2026-01/2030

Title: VINES Track 2: VICEROY: Vehicular Integrated sensing and Communications for Enhanced ROad safety
Source of Support: National Science Foundation
Role: Lead PI
Total Award Period covered: 10/2026-09/2029

6.2 PENDING SPONSORED PROJECTS

Title: Integrated sensing and Communication for intelligent road traffic management
Source of Support: California Transportation Authority
Role: Sole PI
Total Award Period covered: 01/2027-12/2027

Title: NeTS: Distributed AI Solutions for Wireless Applications with KolmogrovArnold Graph Neural Networks
Source of Support: National Science Foundation
Role: Co-PI
Total Award Period covered: 01/2027-12/2030

Title: ECCS Small: Sub-THz Propagation Across Space, Time, and Deployment Settings: Experimentally Grounded Models for Communications and Sensing
Source of Support: National Science Foundation

Role: Sole PI
Total Award Period covered: 10/2027-09/2030

Title: Channel Measurements and Unified Data Model for Upper Midband 6G Scenarios
Source of Support: National Institute of Standards and Technology
Role: Sole PI
Total Award Period covered: 01/2027-12/2027

Title: Ultra-Reliable High-Speed Communication and Precision Localization for Industrial Environments of the Future: Merging the worlds of THz, RIS & AI
Source of Support: Saudi Basic Science (SBS) Initiative
Role: co-PI
Total Award Period covered: 05/2027-04/2031

Title Compact Mode-Matched 4×4 MIMO Apertures and Waveforms for Long-Range VHF Maritime Links
Source of Support: ONR
Role: co-PI
Total Award Period covered: 01/2027-12/2030

Title: OpenRadio3D: An Open Data Foundation for AI-Enabled Wireless
Source of Support: NSF
Role: co-PI
Total Award Period covered: 10/1/2027-9/1/2030

Title: AI-based channel prediction for bistatic radar
Source of Support: GM
Role: Sole PI
Total Award Period covered: 12/2026-11/2027

6.3 PAST AND CURRENT SUPPORT BY GIFTS

Topic: Wireless Systems for Healthcare
Source of support: Okawa Foundation
Time: Oct. 2010

Topic: MmWave for video distribution
Source of support: Disney Research
Time: April 2011

Topic: Efficient MIMO receivers (1)
Source of Support: DoCoMo Research
Time: Jan/March 2012

Topic: Video Aware Wireless Networks (1)
Source of Support: Intel
Time: Jan 2013

Topic: Efficient MIMO receivers (2)
Source of Support: DoCoMo Research
Time: April 2013

Topic: Video Aware Wireless Networks (2)
Source of Support: Intel
Time: March 2014

Topic: mmWave channel sounder construction (1)
Source of Support: Samsung Research America
Time: Sept. 2014
Topic: Wireless video storage
Source of Support: Verizon
Time: Dec. 2014

Topic: Higher Denser Faster (2)
Source of Support: Intel
Time: Jan 2015

Topic: mmWave channel sounder construction (2)
Source of Support: Samsung Research America
Time: Dec. 2015

Topic: mmWave propagation channels
Source of Support: Samsung Research America
Time: July 2016

Topic: Hybrid Digital- Analog Transceivers for Massive Multi-User-MIMO
at Millimeter-Wave Frequencies
Source of Support: Intel
Time Period: Nov. 2016- Oct. 2017

Topic: ADCs for mm-wave systems
Source of Support: Jarriet
Time period: Aug 2016-Jan 2018

Topic: Mm-wave channel measurements
Source of Support: Samsung Research America
Time: Aug/Dec 2017

Topic: Dual-band WLAN systems for ultra-high throughput
Source of Support: Cisco
Time period: Nov. 18-Oct. 19

Topic: THz system design
Source of Support: Samsung Research America
Time: Jan 2019

Topic: THz propagation channels
Source of Support: Samsung Research America
Time: Aug 2020

Topic: Signal Processing for B5G/6G
Source of support: KDDI Research
Total Award Period covered: 09/2020-08/2023

Topic: Dynamic THz propagation channels
Source of Support: Samsung Research America
Time: July 2021

Topic: Next-generation wireless propagation channels
Source of Support: Samsung Research America
Time: July 2022

Topic: Next-generation wireless propagation channels
Source of Support: Samsung Research America
Time: July 2023

Topic: Propagation aspects and waveform design for 6G
Source of Support: Samsung Research America
Time: July 2024

Topic: Point Cloud-Based Accelerated Ray Tracing for Digital Twin Applications in 6G
Source of Support: Samsung Research America
Time: August 2025

Topic: Coverage Prediction Methods
Source of Support: Verizon
Time: October 2025

Topic: Routing for time-critical information packets
Source of Support: Dolby
Time: March 2026

7. RESEARCH PUBLICATIONS

Publications authored, co-authored, or edited

- ***5 books***,
- ***22 book chapters***,
- ***330 journal papers***
- ***440 reviewed conference papers*** (380 at international, 60 at national/continental conferences), and
- numerous other contributions (keynotes, invited lectures, etc.)

H-index: 121 (scholar.google.com)
Number of citations: >85,000 (scholar.google.com)
Google Scholar page: https://scholar.google.com/citations?user=W0wwrucAAAAJ&hl=en&oi=ao

The research contributions cover the following areas

- Wireless propagation channels
- Multiple Antenna systems (smart antennas and MIMO)
- Ultrawideband communications, ranging, and localization
- Radar and sensing
- Joint communication, computation, and caching, wireless video, and edge computing
- Modulation and multiple access
- Machine Learning for propagation channels, localization, and wireless systems
- Ad-hoc networks and cooperative communications
- Radiation trapping

7.1 BOOKS

2022/2011/2005

B-5 **A. F. Molisch,** "Wireless Communications",
First edition: 668 pages, IEEE Press – Wiley (2005);
translation into Chinese, PHEI.
Second edition: 888 pages, IEEE Press – Wiley (2011);
translation into Chinese: Electronic Industry Press.
Third edition, "Wireless Communications - From fundamentals to Beyond 5G" (1005 pages),
IEEE Press-Wiley (2022).
A textbook on wireless for advanced undergraduate and graduate students as well as practicing engineers and researchers. It provides a complete overview of the physical layer of wireless communications, including channels and propagation, transceivers (modulation, coding, MIMO), multi-user systems (scheduling, cognitive radio) and a description of standardized systems. A second edition appeared in early 2011, a third, expanded and completely revised edition in 2022 (copyright year 2023).

2022

B-4 T. S. Rappaport, K. A. Remley, C. Gentile, **A. F. Molisch**, and A. Zajic (eds.), "Radio Propagation Measurements and Channel Modeling - Best Practices for Millimeter-Wave and Sub-Terahertz Frequencies, Cambridge University Press (2022).
This edited book provides a detailed description of measurement and modeling techniques for millimeter-wave and sub-THz frequencies. It is the output of the NIST mm-wave channel modeling group, where I co-chaired the channel modeling group.

2006

B-3 M. G. diBenedetto, T. Kaiser, **A. F. Molisch,** I. Oppermann, C. Politano, and D. Porcino (eds.), "UWB. Communication Systems--A Comprehensive .Overview", Hindawi Publishing (2006).
This edited book provides an overview of all aspects of ultrawideband communications, including propagation channels, system design, international standardization and frequency regulation.

2000

B-2 **A.F. Molisch** (ed.), "Wireless wideband digital communications", 547+xvi pages, Prentice-Hall (2000); translation into Chinese, PHEI (2002).
An (edited) research monograph that describes the effects of using wide bandwidths on the wireless transmission of data. Both the negative (error floor) and positive (enhanced diversity) effects are pointed out. All common wideband methods, including single-carrier transmission with and without equalizers, CDMA, and OFDM, are discussed.

1998

B-1 **A.F. Molisch** and B.P. Oehry, "Radiation trapping in atomic vapors", 510+xxvi pages, Oxford University Press, Oxford, U.K. (1998).
A comprehensive description of the area of radiation trapping, where resonance radiation created by one atom might be absorbed and reemitted by another atom, and this process might be repeated multiple times. Though the topic has been studied in the literature for many years, this book is the first comprehensive and self-consistent description of the field.

7.2 BOOK CHAPTERS

2022

BC-22 M. C. Lee, M. Ji, and **A. F. Molisch**, "Scaling Laws for Cache-Aided Device-to-Device Networks for Wireless Video", in H. V. Poor and W. Chen, *Edge Caching for Mobile Networks*, Cambridge University Press (2022).

2021

BC-21 **A. F. Molisch**, T. Choi, N. Abbasi, F. Rottenberg, and J. Zhang "Millimeter-wave channels", in Wiley 5G Encyclopedia, pages 1-46, doi = https://doi.org/10.1002/9781119471509.w5GRef042, url = https://onlinelibrary.wiley.com/doi/abs/10.1002/9781119471509.w5GRef042,

2019

BC-20 C. Huang, R. He, **A. F. Molisch**, Z. Zhong, and, and B. Ai, "Machine Learning Enabled Channel Modeling", in R. He and Z. Ding (eds.), "Applications of Machine Learning in Wireless Communications", IET Press (2019).

2017

BC-19 S. Avestimehr and **A. F. Molisch**, "Distributed caching for enhancing communications efficiency", in M. Chiang (ed.), "Fog Networks", Wiley (2017).

2016

BC-18 **A. F. Molisch**, "3D Propagation Channels: Modeling and Measurements", in J. Zhang and F. Luo, "Signal Processing for 5G: Algorithms and Implementations", Wiley (2015).

BC-17 **A. F. Molisch**, M. Ji, J. Kim, A. Tehrani, D. Burghal "Device-to-Device Communications", in S. Talwar and R. Vannithamby, "Towards 5G: Applications, Requirements & Candidate Technologies", Wiley (2015).

2012

BC-16 **A. F. Molisch**, "Propagation and channel modeling principles", in G. de la Roche, A. A. Glazunov, and B. Allen, "LTE Advanced and Beyond Wireless Networks: Channel Modeling and Propagation", Wiley (2012).

BC-15 L. Bernado, N. Czink, T. Zemen, A. Paier, F. Tufvesson, C. Mecklenbraueker, and **A. F. Molisch**, "Vehicular channels", in G. de la Roche, A. A. Glazunov, and B. Allen, "LTE Advanced and Beyond Wireless Networks: Channel Modeling and Propagation", Wiley (2012)

BC-14 L. Greenstein, M. Shafi, and **A. F. Molisch**, "Propagation effects in cognitive radio", in E. Biglieri et al. (eds)., "Cognitive Radio Principles", Cambridge University Press (2012).

2011

BC-13 Y. Tian, C. Yang, and **A. F. Molisch,** "Uplink Centralized Joint Detection", in P. Marsch, G. Fettweis (ed.), "Coordinated Multi-Point in Mobile Communications", Cambridge University Press (2011).

BC-12 **A. F. Molisch**, N. B. Mehta, and S. Draper, "Cooperative Communications for Reliability", in _I. Guvenc, S. Gezici, Z. Sahinoglu, and U. Kozat, "Reliable Communications for Short-Range Wireless Systems", Cambridge University Press (2011).

2006

BC-11 **A. F. Molisch**, "Introduction to UWB signals and systems", in E. Okon, B. Allen, W. Malik, D. Edwards, and A. K. Brown (eds.), "Ultra Wideband: Antennas and Propagation for Communications, Radar and Imaging", Wiley, (2006).

BC-10 **A. F. Molisch** and H. Hofstetter, "The COST 273 MIMO channel model", in L. Correia (ed.), "Mobile Broadband Multimedia Networks", Academic Press, (2006).

BC-9 N. Mehta and **A. F. Molisch**, "Antenna selection in MIMO systems," in G. Tsoulos (ed.), "MIMO antenna technology for wireless communications,", CRC press (2006).

2005

BC-8 **A. F. Molisch** and F. Tufvesson, ""MIMO Channel Capacity and Measurements", in T. Kaiser (ed.), "Smart antennas in Europe – state of the art", EURASIP Publishing, (2005)

BC-7 **A. F. Molisch** et al., "Ultrawideband Propagation Channels", in "UWB communications systems – a comprehensive overview", G. DiBenedetto et al. (ed.), EURASIP Publishing, 2006.

2004

BC-6 **A.F. Molisch** and F. Tufvesson, "Multipath propagation models for broadband wireless systems", Chapter 2 in "Digital Signal Processing for Wireless Communications Handbook", CRC Press, M. Ibnkahla (ed.), invited, pp. 2.1-2.43, 2004.

2001

BC-5 M. Steinbauer and **A. F. Molisch** (eds.), "Directional channel models", Chapter 3.2 (pp. 132-193) of "Flexible Personalized Wireless Communications", L. Correia (ed.), Wiley, 2001

BC-4 **A. F. Molisch**, "DECT and adaptive sampling", in "Flexible Personalized Wireless Communications", L. Correia (ed.), Wiley, 2001

2000

BC -3 **A. F. Molisch**, "Introduction to wideband wireless systems", Part 1 (pp. 1-62) of A.F. Molisch (ed.), "Wireless wideband digital communications", Prentice-Hall, 2000

BC -2 **A. F. Molisch**, "Unequalized systems", Part 2 (pp. 63-154) of A.F. Molisch (ed.), "Wireless wideband digital communications", Prentice-Hall, 2000

1999

BC -1 L.B. Lopes and **A.F. Molisch**, "Research into performance and enhancement of second generation systems: GSM and DECT", pp. 209-284 in "Digital Mobile Radio - the view of COST 231", E. Damosso and L. Correia (eds.), European Union Publications 1999.

7.3 PAPERS IN INTERNATIONAL JOURNALS

2026

J-337 N. A. Abbasi, K. Arana, S. Singh, A. Bist, V. Vasudevan, T. Pal, J. Gomez-Ponce, Y. H. Nam, J. C. Zhang, and **A. F. Molisch**, "Ultra-Wideband Double-Directional Obstructed Line-of-Sight (OLoS) Channel Measurements and Statistical Modeling in Urban Microcellular Environments for the Upper-Midband/FR3", *IEEE Trans. Wireless Comm.*, accepted (2026).

J-336 F. Pervej, P. Pratik, K. Manjunatha, P. Shamain, and **A. F. Molisch**, "Double-Directional Wireless Channel Generation using Statistics-Informed Machine Learning", *IEEE Journal of Selected Topics in Electromagnetics, Antennas and Propagation*, **2**, 100 - 115 (2026).

J-335 L. Chu, D. Burghal, R. Wang, M. Neuman, and **A. F. Molisch**, "Context-Conditioned Spatio-Temporal Predictive Learning for Reliable V2V Channel Prediction", *IEEE Trans. Intelligent Transport. Sys.*, **27**, 7608 - 7622 (2026).

J-334 Z. Cheng, N. A. Abbasi, J. Gomez-Ponce, J. C. Zhang, and **A. F. Molisch**, "Stochastic Cluster-based Channel Modeling for Sub-Terahertz Outdoor Device-to-Device Radio Propagation at 145 GHz", *IEEE Trans. Wireless Comm.*, **25**, 20883 - 20899 (2026).

J-333 B. A. A. Modad, X. Yu, Y.Y. Chiang, and **A. F. Molisch**, "Line-of-Sight Probability in Macrocells: Framework, Statistical Models, and Parametrization from Massive Real World Datasets in the USA", *IEEE Trans. Wireless Comm.*, **74**, 3847 - 3864 (2026).

J-332 T. Kuerner, **A. F. Molisch**, and M. Shafi, "Review of Wireless Propagation Research - Past, Current and Future Developments" (invited paper), *IEEE Trans. Antennas Prop.*, accepted (2026).

J-331 A. Fadakar, Y. Zhang, H. Chen, M. F. Keskin, H. Wymeersch, and **A. F. Molisch**, "Hybrid Codebook Design for Localization Using Electromagnetically Reconfigurable Fluid Antenna System", *IEEE J. Select. Areas. Signal Proc.* **20**, 371 – 388 (2026).

J-330 X. Su, Z. Jiang, M. Ramakrishnan, H. Zhou, A. Alhaddad, M. Tur, **A. F. Molisch**, and A. E. Willner, "Longitudinal Structuring of Artificial Noise Electromagnetic Field for Enhanced Physical-Layer Security in Line-of-Sight Wireless Communications", *IEEE J. Lightwave Technology*, **44**, 2199 - 2210 (2026).

J-329 V. N. Vitale, A. Tulino, **A. F. Molisch**, and J. Llorca, „A Flexible Multi-Agent Deep Reinforcement Learning Framework for Dynamic Routing and Scheduling of Latency-Critical Services", *IEEE Trans. Networking*, **34**, 2653 - 2668 (2026).

J-328 A. Rizwan, D. J. Han, M. Ferdous Pervej, C. G. Brinton, **A. F. Molisch**, and M. Choi, "Efficient Split Learning with Overlapping Areas: Handling Distribution Shift in Multi-Cell Networks", *IEEE Trans. Networking*, **34**, 2834 - 2849 (2026).

J-327 J. Gomez-Ponce, D. Chizhik, J. Du, R. Valenzuela, K. Arana, N. A. Abbasi, and **A. F. Molisch**, "Efficient Integration of Street Clutter into mm-Wave Ray Tracing in Urban Environments based on more than 1000 measurements", *IEEE Trans. Antennas Prop.*, **74**, 1257 - 1262 (2026).

J-326 H. Hammoud, Y. Zhang, Z. Cheng, S. Sangodoyin, M. Hofer, F. Pasic, T. M. Pohl, R. Závorka, A. Prokes, T. Zemen, C. F. Mecklenbräuker, and **A. F. Molisch**, "Double-Directional V2V Channel Measurement using ReRoMA at 60 GHz", *IEEE Trans. Vehicular Techn.*, **75**, 729-743 (2026).

2025

J-325 T. Choi, Y. Zhang, I. Kanno, M. Ito, and **A. F. Molisch**, "CUNEC: A Path Loss Model for Urban Cell-Free Massive MIMO Networks", *IEEE Trans. Wireless Comm.*, **25**, 7858 - 7872 (2025).

J-324 F. Pasic, M. Hofer, M. Mussbah, S. Sangodoyin, S. Schwarz, T. Zemen, M. Rupp, **A. F. Molisch**, and C. F. Mecklenbräuker, "Millimeter Wave MIMO Channel Estimation using sub-6,GHz Out-of-Band Information", *IEEE Trans. Comm.*, **73**, 10692-10708 (2025).

J-323 O. G. Serbetci, D. Burghal, and **A. F. Molisch**, „"Wireless Channel Aware Data Augmentation Methods for Deep Learning-Based Indoor Localization", *IEEE Trans. Wireless Comm.*, **24**, 9811 - 9825 (2025).

J-322 N. Nataraja, K. Ali, F. Bai, and **A. F. Molisch**, "Cars and Trucks as Blockers and Reflectors in Vehicular ISAC Systems: Theory, Measurements, and Applications", *IEEE Vehicular Techn. Mag,*, **20 (3)**, 41-48 (2025).

J-321 T. Zemen, J. Gomez-Ponce, A. Chandra, M. Walter, E. Aksoy, R. He, D. Matolak, M. Kim, J. Takada, S. Salous, R. Valenzuela, **A. F. Molisch**, „Site-Specific Radio Channel Representation for 5G and 6G", *IEEE Comm Mag.*, **63 (6),** 106-113 (2025).

J-320 N. A. Abbasi, T Pal, K. Arana, V. Vasudevan, J. Gomez-Ponce, Y. H. Nam, J. Zhang, and A. F. Molisch, "An Ultra-Wideband Study of Vegetation Impact on Upper Midband / FR3 Communication", *IEEE Wireless Comm Lett*, **14**, 2302-2305 (2025).

J-319 M. Neuman, D. Burghal, and **A. F. Molisch**, „Impact of Channel and System Parameters on Performance Evaluation of Frequency Extrapolation Using Machine Learning", *IEEE Open J. Comm. Soc.*, **6**, 4840-4853 (2025).

J-318 G. Castro, T. Choi, H. C. Chung, Q. Ma, **A. F. Molisch**, and G. Rebeiz, "Millimeter-Wave Phased-Array Channel Sounder for Double Directional Communication and Localization Channel Descriptions", *IEEE Trans. Ant. Prop.*, **73**, 1922-1937 (2025).

J-317 H. Baek, G. S. Kim, S. Park, **A.F. Molisch**, J. Kim, "Slimmable Federated Reinforcement Learning for Energy-Efficient Proactive Caching", *IEEE Trans. Networking.*, **33**, 2079-2094 (2025).

J-316 L. Chu, A. Alghafis, and **A. F. Molisch**, "Exploiting Semantic Localization in Highly Dynamic Wireless Networks using Deep Homoscedastic Domain Adaptation", *IEEE Trans. Comm*, **73**, 2032-2046 (2025).

J-315 Y. Zhang, T. Choi, Z. Cheng, J. Gomez-Ponce, I. Kanno, M. Ito, and **A. F. Molisch**, "Cell-free Massive MIMO Channels in an Urban Environment - Measurements and Channel Statistics, *IEEE Trans. Wireless Comm.***24**. 5709-5722 (2025).

J-314 N. K. Nataraja, S. Sharma, R. Wang, K. Ali, F. Bai, and **A. F. Molisch**, "Integrated Sensing and Communication (ISAC) for Vehicles: Bistatic Radar with 5G-NR Signals", *IEEE Trans. Vehicular Techn.*.**74**, 6121-6137 (2025).

J-313 F. Pervej and **A. F. Molisch**, "Resource-Aware Hierarchical Federated Learning in Wireless Video Caching Networks", *IEEE Trans. Wireless Comm.*, **24**, 165-180 (2025).

J-312 H. Hammoud, Y. Zhang, Z. Cheng, S. Sangodoyin, M. Hofer, F. Pasic, T. M. Pohl, R. Závorka, A. Prokes, T. Zemen, C. Mecklenbräuker, **A. F. Molisch**, "A Novel Low-Cost Channel Sounder for Double-Directionally Resolved Measurements in the MmWave band", *IEEE Trans. Wireless Comm.*, **24**, 340-354 (2025).

J-311 H. Hammoud, Z. Cheng, J. Gomez-Ponce, S. Sangodoyin, J. Kahn, and **A. F. Molisch**, "Propagation Channel Measurements for Indoor-to-Outdoor Communications for Device-to-Device Public Safety Applications", *IEEE Open Journal of the Communication Society,* **6**, 154-170 (2025).

J-310 **A. F. Molisch**, C. F. Mecklenbrauker, T. Zemen, A. Prokes, M. Hofer, F. Pasic, and H. Hammoud, "Millimeter-wave V2X Channel Measurements in Urban Environments", invited paper, *IEEE Open Journal on Vehicular Technology*, **6**, 520-541 (2025).

2024

J-309 Z. Cheng and **A. F. Molisch**, "Multi-cluster Frequency-angle Diffuse Scattering Model and its Estimation", *IEEE Open Journal of the Communication Society,* **5**, 7176-7196 (2024).

J-308 C. Aldana, K. Takamizawa, S. Soora, C. Kennedy, M. Mehrnoush, J. Cook-Ramirez, C. Hu, and **A. F. Molisch**, "Body Area Network Channel Measurement and Modeling for Extended-Reality Applications", *IEEE Open Journal of the Communication Society*, **5**, 7715-7729 (2024).

J-307 J. Y. Lee and **A. F. Molisch**, "A Scalable and Generalizable Pathloss Map Prediction", *IEEE Trans. Wireless Comm*, **23**, 17793-17806 (2024).

J-306 A. Pradhan, J. K. Devineni, **A. F. Molisch**, and H. S. Dhillon, "Novel LoS β-γ THz Channel Unifying Molecular Re-radiation Manifestations", *IEEE Trans. Vehicular Techn.***73**, 15653-15658, 2024.

J-305 **A. F. Molisch**, J. Gomez-Ponce, N. Abbasi, G. Xu, and J. Zhang, "Properties of Sub-THz Propagation Channels and Their Impact on System Behavior: Channel Measurements and Transmission Experiments", *IEEE Wireless Communications* **31 (1)**, 18-24 (2024).

J-304 D. Burghal, J. Gomez-Ponce, N. A. Abbasi, and **A. F. Molisch**, "Estimation of Isotropic Pathloss from Directional Channel Measurements in Azimuth and Elevation", *IEEE Antennas Prop. Lett*, **23**, 2145-2149 (2024).

J-303 J. Y. Lee, C. Park, S. Park, and **A. F. Molisch**, "Handover Protocol Learning for LEO Satellite Networks: Access Delay and Collision Minimization", *IEEE Trans. Wireless Comm.,* **23**, 7624-7637 (2024).

J-302 J. Gomez-Ponce, N. A. Abbasi, Z. Cheng, S. Abu-Surra, G. Xu, J. Zhang, and **A. F. Molisch**, "Impact of noisy measurements with Fourier-based evaluation on condensed channel parameters", *IEEE Trans. Wireless Comm.*, **23**, 8136-8152 (2024).

J-301 N. A. Abbasi, J. Gomez-Ponce, R. Kondaveti, A. Kumar, E. Bhagat, R. N S Rao, S. Abu-Surra, G. Xu, C. Zhang, and **A. F. Molisch**, "THz Band Channel Measurements and Statistical Modeling for Urban Microcellular Environments", *IEEE Trans. Wireless Comm.,* **23**, 6719-6734 (2024).

J-300 Y. Cai, J. Llorca, A. Tulino, and **A. F. Molisch**, "Joint Compute-Caching-Communication Control for Online Data-Intensive Service Delivery", *IEEE Trans. Mobile Comp.*, **23**, 4617 - 4633 (2024).

J-299 A. Pradhan, A. Abd-Elmagid, H. Dhillon, and **A. F. Molisch**, "Robust Optimization of RIS in Terahertz under Extreme Molecular Re-radiation Manifestations", *IEEE Trans. Wireless Comm.*,. **23**, 1783-1797 (2024).

2023

J-298 D. Burghal, Y. Li, P. Madad, Y. Hu, J. Jeon, J. Y. Cho, **A. F. Molisch**, and J. Zhang, "Enhanced AI-Based CSI Prediction Solutions for Massive MIMO in 5G and 6G Systems", *IEEE Access* **11**, 117810-117825 (2023).

J-297 B. Antwi-Boasiako, P. Anokye, D. K. P. Asiedu, R. K. Ahiadormey, K.J. Lee, and **A. F. Molisch**, "Multi-Stream Transmission in Massive MIMO Systems with Full-Duplex Bi-Directional Communication Links", *IEEE Trans. Vehicular Comm.*, **72**, 12367-12372 (2023).

J-296 Y. Cai, J. Llorca, A. Tulino, and **A. F. Molisch**, "Decentralized Control of Distributed Cloud Networks with Generalized Network Flows", *IEEE Trans. Comm* **71**, 256-268 (2023).

J-295 F. Sheikh, A. Prokscha, J. M. Eckhardt, T. Doeker, N. A. Abbasi, J. Gomez-Ponce, B. Sievert, J. T. Svejda, A. Rennings, J. Barowski, C.Schulz, I. Rolfes, D. Erni, **A. F. Molisch**, T. Kurner, and T. Kaiser, "THz Measurements, Antennas, and Simulations: From the Past to the Future", *IEEE J. of Microwaves* **3**, 289-304 (2023).

J-294 X. Su, H. Song, H. Zhou, K. Zou, Y. Duan, N. Karapetyan, R. Zhang, A. Minoofar, H. Song, K. Pang, S. Zach, **A. F. Molisch**, M. Tur, and A. E. Willner, "A THz Integrated Circuit based on a Pixel Array to Mode Multiplex Two 10-Gbit/s QPSK Channels Each on a Different OAM Beam", *IEEE J. Lightwave Techn.*, **41**, 1095-1103 (2023).

J-293 M. C. Lee and **A. F. Molisch**, "Optimal Delay-Outage Analysis for Noise-Limited Wireless Networks with Caching, Computing, and Communications", *IEEE Trans. Wireless Comm*. **22**, 1417-1431 (2023).

J-292 N. Abbasi, J. Gomez, R. Kondaveti, S. Shaikbepari, S. Rao, S. Abu-Surra, G. Xu, J. C. Zhang, and **A. F. Molisch**, "THz Band Channel Measurements and Statistical Modeling for Urban D2D Environments", *IEEE Trans. Wireless Comm.*, **22,** 1466-1479 (2023).

2022

J-291 M. Ito, I. Kanno, K. Yamazaki, Y. Kishi, W. Y. Chen, T. Choi, and **A. F. Molisch**, "Impact of Antenna Distribution on Spectral and Energy Efficiency of Cell-Free Massive MIMO with Transmit Power Control Algorithms", *IEEE Open Journal Comm.* **3**, 1615-1629 (2022).

J-290 A. E. Willner , X. Su, H. Zhou, A. Minoofar, Z. Zhao, R. Zhang, M. Tur, **A. F. Molisch**, H. Sasaki, A. Almaiman, and, "High capacity terahertz communication systems based on multiple orbital-angular-momentum beams", *Journal of Optics* **12**, 124002 (2022).

J-289 X. Su, R. Zhang, Z. Zhao, H. Song, A. Minoofar, N. Hu, H. Zhou, K. Zou, K. Pang, H. Song, B. Lynn, S. Zach, M. Tur, **A. F. Molisch**, H. Sasaki, D. Lee, and A. E. Willner, "Receiver Aperture and Multipath Effects on Power Loss and Modal Crosstalk in a THz Wireless Link using Orbital-Angular-Momentum Multiplexing", *Scientific Reports* **12**, Article 14053 (2022).

J-288 V. Ratnam, J. Mo, A. Alammouri, B. L. Ng, S. Abu-Surra, G. Xu, C. Zhang, and **A. F. Molisch**, "Joint phase-time arrays: a paradigm for frequency-dependent analog beamforming in 6G", *IEEE Access* **10,** 73364-73377 (2022).

J-287 H. Zhou, X. Su, A. Minoofar, R. Zhou, H. Song, K. Pang, h. Qian, H. Hu, Z. Zhao, A. Almaiman, S. Zach, M. Tur, **A. F. Molisch**, H. Sasaki, D. Lee, A. E. Willner, "Utilizing Multiplexing of Structured THz Beams Carrying Orbital-Angular-Momentum for High-Capacity Communications", *Optics Express* **30**, 25418-25432 (2022).

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C-15 **A.F. Molisch** and J. Fuhl, "Bit error probability of differentially detected (G)MSK in indoor mobile radio channels", *Proc. 46th IEEE Vehicular Techn. Conf.*, Atlanta 96, 1404-1408 (1996).

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C-08 V. Lipovac and **A.F. Molisch**, "On the performance of MSK signal transmission over a multipath channel with small time dispersion", *Proc. 45th IEEE Vehicular Techn. Conf.*, Chicago 1995, 25-29 (1995).

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7.6 PAPERS IN CONTINENTAL OR NATIONAL CONFERENCE PROCEEDINGS

2025

NC-59 F. Pasic, M. Hofer, T. Zemen, **A. F. Molisch**, and C. Mecklenbrauker, "Time-Varying Rician K-Factor in Measured Vehicular Channels at cmWave and mmWave Bands", *Europ. Wireless 25* (2025).

NC-58 M. Hofer, F. Pasic, B. Rainer, J. Blumenstein, A. Prokes, C. Mecklenbrauker, **A. F. Molisch**, and T. Zemen, "Enabling Vehicular mmWave Communication Links Using cmWave Information", *Europ. Wireless 25* (2025).

2024

NC-57 D. Cassioli, R. Alesi, F. Granelli, and **A. F. Molisch**, "A New Statistical Model of Human-Induced Multipath Dynamics in mmWaves Channels", *Europ. Wireless 24* (2024).

NC-56 P. Koivumaki, K. Haneda, and **A. F. Molisch**, "On the Use of Adaptive-Density Point Cloud for Site-Specific Ray-Optics Simulations", *EuCAP 24* (2024).

2021

NC-55 M. Ito, I. Kanno, T. Ohseki, K. Yamazaki, Y. Kishi, T. Choi, and A. F. Molisch, "On Spectral and Energy Efficiency of Semi-Distributed Cell-Free Massive MIMO", in *IEICE Conferences Archives* (2021).

2020

NC-54 N. Abbasi, A. Hariharan, A. M. Nair, and **A. F. Molisch**, "Channel Measurements and Path Loss Modeling for Indoor THz Communication", *European Conference on Antennas and Propagation 2020*, (2020).

NC-53 H. Groll, E. Zoechmann, M. Hofer, H. Hammoud, S. Sangodoyin, T. Zemen, J. Blumenstein, A. Prokes, **A. F. Molisch,** C. F. Mecklenbrauker, "60 GHz V2I Channel Variability for Different Elevation Angle Switching Strategies", *European Conference on Antennas and Propagation 2020*, (2020)

2016

NC-52 **A. F. Molisch**, A. Karttunen, R. Wang, C. U. Bas, S. Hur, J. Park, J. Zhang, "Millimeter-Wave Channels in Urban Environments",*EuCAP 2016*, invited plenary (2016).

NC-51 **A. F. Molisch**, A. Karttunen, C. U. Bas, S. Hur, J. Park, J. Zhang, "Spatially Consistent Pathloss Modeling for Millimeter-Wave Channels in Urban Environments", *EuCAP 2016*, (2016)

2015

NC-50 S. Hur, Y. J. Cho, T. Kim, J. Park, **A. F. Molisch**, K. Haneda, and M. Peter, "Wideband Spatial Channel Model in an Urban Cellular Environments At 28 GHz", *EuCAP 2015*, (2015)

NC-49 S. Hur, S. Baek, B. Kim, J. Park, **A. F. Molisch**, K. Haneda, and M. Peter, "28 GHz Channel Modeling Using 3D Ray-Tracing in Urban Environments," *EuCAP 2015*, (2015).

2014

NC-48 Z. Jiang, **A. F. Molisch**, G. Caire, and Z. Niu, "On the Achievable Rates of FDD MIMO Systems with Spatial Channel Correlation", *IEEE Int. Conf. Comm. China (ICCC)* (2014).

NC-47 W. Li, T. Zhang, Y. Shen, **A. F. Molisch**, and Q. Zhang, "Robust resource allocation in wireless localization networks", *IEEE Int. Conf. Comm. China (ICCC)*, (2014).

NC-46 S. Aditya and **A. F. Molisch**, "Multicast Routing with Mutual Information Accumulation", *IEEE Int. Conf. Comm. China (ICCC)*, (2014).

2013

NC-45 S. Han, C. Yang, and **A. F. Molisch**, "Traffic-aware base station doze in cooperative multicell systems", *2013 IEEE China Signal and Information Processing (ChinaSIP)*, 394-398 (2013).

NC-44 S. Sangodoyin, S. Niranjayan, and **A. F. Molisch,** "Ultrawideband Near-Ground Outdoor Propagation Channel Measurements and Modeling", *EuCAP 2013*, 3034 – 3038 (2013).

2012

NC-43 Sangodoyin, J. Salmi, S. Niranjayan, and **A. F. Molisch**, "Real-Time Ultrawideband MIMO Channel Sounding", *EuCAP 2012*,. 2303-2307, 2012.

NC-42 Z. Li, R. Wang, and **A. F. Molisch**, "Shadowing in Urban Environments with Microcellular or Peer-to-Peer Links", *EuCAP 2012*, 44-48, 2012.

2010

NC-41 E. Rebeiz, G. Caire, and **A. F. Molisch**, "Dynamic Power and Rate Control for Bluetooth-Like Body-Area Sensor Networks", *Mobile Health Summit*, Washington, DC, Nov. 2010.

NC-40 **A. F. Molisch**, "MIMO-UWB propagation channels", *EuCAP 2010*, 2010.

NC-39 J. Salmi, J. Poutanen, K. Haneda, A. Richter, V.-M. Kolmonen, P. Vainikainen, and **A. F. Molisch**, "Incorporating Diffuse Scattering in Geometry-based Stochastic MIMO Channel Models", *EuCAP 2010*, 2010.

2008

NC-38 A. Paier, T. Zemen, L. Bernado, G. Matz, J. Karedal, N. Czink, C. Dumard, F. Tufvesson, **A. F. Molisch**, C. F. Mecklenbraeuker, „Non-WSSUS Vehicular Channel Characterization in Highway and Urban Scenarios at 5.2 GHz using the Local Scattering Function ", *2008 International ITG Workshop on Smart Antennas*, 9-15, 2008.

2007

NC-37 N. Czink, R. Tian, S. Wyne, F. Tufvesson, J. P. Nuutinen, J. Ylitalo, E. Bonek, **A. F. Molisch**, Tracking Time-Variant Cluster Parameters in MIMO Channel Measurements" *Chinacom 2007*, in press

NC-36 J. Koivunen, P. Almers, V.-M. Kolmonen, J. Salmi, A. Richter, F. Tufvesson, P. Suvikunnas, **A. F. Molisch**, and P. Vainikainen, "Measurement setup for dynamic multilink MIMO measurements at 5.3 GHz", *Proc. EuCAP07,* invited, 1-6 (2007).

NC-35 N. Czink, R. Tian, S. Wyne, G. Eriksson, T. Zemen, J. Ylitalo, F. Tufvesson, and **A. F. Molisch**, "Cluster parameters for time-variant channel models", *Proc. EuCAP07,* invited, 1-8 (2007).

NC-34 S. Wyne, T. Santos, F. Tufvesson, and **A. F. Molisch**, "Measurement of Small-Scale Fading For Indoor Wireless Sensor Networks, *URSI-AP North American Meeting,* invited paper (2007).

2006

NC-33 W. Malik and **A. F. Molisch**, "Ultrawideband antenna arrays and directional propagation channels", *Proc. EuCAP06*, invited paper (2006).

NC-32 **A. F. Molisch**, P. Orlik, Z. Sahinoglu, and J. Zhang, "UWB-based sensor networks and the IEEE 802.15.4a standard - a tutorial", *Chinacomm 2006*, invited paper, (2006).

NC-31 **A. F. Molisch**, N. B. Mehta, H. Zhang, P. Almers, and J. Zhang, "Implementation Aspects of Antenna Selection for MIMO Systems situations" *Chinacomm 2006*, invited paper, (2006).

NC-30 H. Hofstetter, **A. F. Molisch,,** and N. Czink, "A twin-cluster MIMO channel model", *Proc. EuCAP06* (2006).

NC-29 J. Karedal, A. J. Johansson, F. Tufvesson, and **A. F. Molisch**, "Characterization of MIMO Channels for Personal Area Networks at 5 GHz", *Proc. EUSIPCO 2006,* invited paper.

NC-28 G. Eriksson, F. Tufvesson, and **A. F. Molisch**, "Potential for MIMO systems at 300 MHz – Measurements and Analysis", *Antennas 06, Sweden*.

2005

NC-27 S. Gezici, Z. Sahinoglu, **A. F. Molisch**, H. Kobayashi, and H. V. Poor, "A Two-Step Time of Arrival Estimation Algorithm for Impulse Radio Ultra Wideband Systems", *Proc. EUSIPCO 2005*, (2005)

2004

NC-26 **A. F. Molisch**, „UWB Wireless Channels - Propagation Aspects and Interplay with System Design", *Proc. European Microwave Conference 2004*, invited paper, 1101-1104 (2004).

NC-25 **A. F. Molisch**, F. Tufvesson, P. Almers, S. Wyne, and G. Ericsson, "Space-time channel modeling", ", *Proc. European Microwave Conference 2004*, invited paper (2004).

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NC-24 H. Hofstetter, **A. F. Molisch**, and M. Steinbauer, „Implementation of a COST259 geometry based stochastic channel model for macro and micro cells", *Proc. Europ. Personal Mobile Comm. Conf. 2001*, on CD (2001).

NC-23 **A. F. Molisch**, M. Z. Win, and J. H. Winters, " Space-time-frequency-coding for MIMO-OFDM systems ", *Proc. Europ. Personal Mobile Comm. Conf. 2001*, on CD (2001).

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NC-22 M. Steinbauer, **A. F. Molisch**, A. Burr, and R. Thomae, „Capacity of MIMO channels based on measurements", *Proc. Europ. Conf. Wireless Techn*., Paris, Oct. 2000, 52-55 (2000)

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NC-21 **A.F. Molisch**, J. Laurila, and A. Kuchar, "Geometry-based stochastic model for mobile radio channels with directional component", *Proc. 2nd Intelligent Antenna Symp.*, Univ. Surrey, (1998).

NC-20 N.N. Bezuglov, **A.F. Molisch**, A.N. Klucharev, F. Fuso, and M. Allegrini, "Quantization technique to solve radiation trapping equation in 2-D and 3-D geometries", *Proc. European Conf. Atomic Molecular Physics '98*, 1.12 (1998).

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NC-19 M. Paier, **A.F. Molisch**, and E. Bonek, "Determination of the optimum sampling time in DECT-like systems", *Proc. Europ. Personal and Mobile Comm. Conf '97*, 459-465 (1997).

NC-18 **A.F. Molisch**, M. Paier, and E. Bonek, "Performance of DECT receivers with burst-by-burst adaptive synchronization", *Proc. IRCTR Colloquium Indoor Comm.*, 27-43 (1997).

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NC-17 **A.F. Molisch**, B.P. Oehry, W. Schupita, and G. Magerl, "Optimization of mercury-vapor lasers", *Proc. European Quantum Electronics Conf.,* Hamburg, QTuJ8 (1996).

NC-16 **A.F. Molisch** and E. Bonek, "Computation of the bit error probability of MSK with fractional-bit detection in time-dispersive AWGN fading channels", *Proc. 1996 SNRV and NUTEK Conf. on Radio Sciences and Telecommunications - RVK 96,* Lulea, Schweden, 390-394 (1996).

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NC-15 J. Fuhl and **A.F. Molisch**, "Space domain equalisation for second and third generation mobile radio systems, *Proc. 2. ITG Fachtagung Mobile Kommunikation*, Neu-Ulm 85-92 (1995).

NC-14 **A.F. Molisch**, J. Fuhl, and E. Bonek, "Exact computation of the error floor of DBPSK in two-delay mobile radio channels", *Proc. 2. ITG Fachtagung Mobile Kommunikation*, Neu-Ulm 263-270 (1995).

NC-13 **A.F. Molisch**, J. Fuhl, and E. Bonek, "Pattern distortion of mobile radio base station antennas by antenna masts and roofs", *Proc. 25th Europ. Microwave Conf.* Bologna 71-76 (1995).

NC-12 L. B. Lopes, **A.F. Molisch**, M. Paier, and J. Fuhl, "On the error floor in DECT-like systems", *Proc. Europ. Personal and Mobile Comm. Conf.* Bologna 95, 170-75 (1995).

NC-11 J. Fuhl and **A.F. Molisch**, " Minimization of outage probability in cellular communication systems by antenna beam tilting", *Proc. Virg. Tech. Symp. Mob. Comm.* Blacksburg 1995, 15.1-15.12 (1995).

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NC-10 **A.F. Molisch**, B.P. Oehry, W. Schupita, B. Sumetsberger, und G. Magerl: "Teilchendiffusion und Radiation Trapping in atomaren Dämpfen", *Mauterndorfer Laserseminar* (1994).

NC-09 **A.F. Molisch**, B.P. Oehry, W. Schupita, B. Sumetsberger, und G. Magerl: "Radiation Trapping mit partial frequency redistribution", *Poster bei der Jahrestagung ÖPG Innsbruck* (1994).

NC-08 **A.F. Molisch**, W. Schupita, B.P. Oehry, B. Sumetsberger, and G. Magerl: "Monte Carlo Simulation of Nonlinear Radiation Trapping and Diffusion in 3-level Atoms", *Proc. European Quantum Electronics Conf 94*, 251-253, Amsterdam (1994) .

NC-07 B. Sumetsberger, W. Schupita, **A.F. Molisch**, B.P. Oehry, und G. Magerl: "Optimierter Aufbau eines lampengepumpten Thallium-Atomresonanzfilters", *Mauterndorfer Laserseminar* (1994).

1993

NC-06 B. Sumetsberger, W. Schupita, K. Haselsteiner, B.P. Oehry, **A.F. Molisch**, und G. Magerl: "Effiziente elektrodenlose Spektrallampe", *Poster at the Annual Meeting of the Austrian Physical Society 1993* (1993).

NC-05 W. Schupita, B. Sumetsberger, B. P. Oehry, **A.F. Molisch**, and G. Magerl: "Das Thallium Atomresonanzfilter", *Poster at the Annual Meeting of the Austrian Physical Society 1993* (1993).

1992

NC-04 **A.F. Molisch**, B.P. Oehry, und G. Magerl: "Numerische Behandlung von Radiation-Trapping Effekten in atomaren Dämpfen", *Mauterndorfer Laserseminar* (1992).

NC-03 **A.F. Molisch**, B.P. Oehry, W. Schupita, und G. Magerl: "Umfassende Theorie des Radiation Trapping in einfachen Geometrien", *Poster at the Annual Meeting of the Austrian Physical Society 1992* (1992).

NC-02 **A.F. Molisch** and F.J. Seifert: "The Influence of Long Shielding Plates on the Fields in Interdigital Transducers", *Proc. 5th IGTE Symp. on Numerical Field Calculations in Electrical Engineering* 52-58 (1992)

1990

NC-01 **A.F. Molisch** and A.R. Baghai-Wadji: "The Electrostatic Charge Distribution on Two Semi-Infinite Metallic Plates Induced by a Line Charge", *Proc. 4th IGTE Symp. on Numerical Field Calculations in Electrical Engineering* 223-228 (1990).

7.7 TUTORIALS AT INTERNATIONAL CONFERENCES

2023

T-34 **A. F. Molisch**, "Compute-Caching-Communication Integration for Efficient Delivery of Metaverse Experiences", tutorial at JCCS 2023, Korea, April 2023.

2022

T-34 **A. F. Molisch**, J. Llorca, A. M. Tulino, and Y. Cai, "Compute-Caching-Communication Integration for Efficient Delivery of Metaverse Experiences", tutorial at Globecom 2022, Rio de Janeiro

T-33 **A. F. Molisch**, D. Burghal, and L. Chu, "Scalable, Accurate, and Privacy-Preserving Localization in B5G Wireless Networks", tutorial at Globecom 2022, Rio de Janeiro

2020

T-32 **A. F. Molisch** and N. Abbasi, "Measurements and modeling of mm-wave and THz propagation channels", tutorial at Globecom 2020, Taipei

2019

T-31 **A. F. Molisch** and J. Zhang, "Channel Measurement and Modeling for Fifth-Generation (5G) System", tutorial at ICC 2019, Shanghai.

2018

T-30 **A. F. Molisch**, R. Hadani, A. Monk, and C. Ibers, "Communication in high-mobility environments", tutorial at IEEE VTC Fall 2018, Chicago, IL.

T-29 **A. F. Molisch**, "mm-wave propagation channel measurement and modeling", half-day tutorial at IEEE ICC 2018, Kansas City, MO

2017

T-28 **A. F. Molisch**, "mm-wave propagation channel measurement and modeling", half-day tutorial at Milcom, Baltimore, MA

2009

T-27 **A. F. Molisch,** N. B. Mehta, and J. Tao, "IMT-Advanced Systems: Enabling Technologies and Standardizations " Half-day tutorial at ICC, Dresden

2008

T-26 **A. F. Molisch**, "MIMO systems and spatial channels"
Half-day tutorial at MILCOM, San Diego

T-25 **A. F. Molisch** and M. Z. Win, "Ultra-wide-bandwidth systems"
Half-day tutorial at MILCOM, San Diego, CA

T-24 **A. F. Molisch**, "MIMO propagation channels"
Half-day tutorial at URSI General Assembly, Chicago, IL

T-23 **A. F. Molisch**, "MIMO systems and spatial channels"
Full-day tutorial at IEEE Antennas and Propagation Symposium, San Diego, CA

T-22 M. Z. Win and **A. F. Molisch**, "Ultra-wide-bandwidth systems"
Half-day tutorial at IEEE International Conference on Communications, Beijing

2007

T-21 **A. F. Molisch**, "Multiple-antenna systems "
Full-day tutorial at IEEE Antennas and Propagation Symposium, Honululu, HI

2006

T-20 **A. F. Molisch**, E. Bonek, and F. Tufvesson, "Measurement and modelling of wireless propagation channels for MIMO and UWB "
Full-day tutorial at joint ACORN-NEWCOM workshop, Vienna

2005

T-19 **A. F. Molisch**, „Ultrawideband propagation channels"
Half-day tutorial at IEEE International Conference on Ultrawideband, Zurich, Switzerland

2004

T-18 M. Z. Win and **A. F. Molisch**, "Ultrawideband systems",
Half-day tutorial at IEEE Globecom ,04, Dallas, USA

T-17 E. Bonek, K. Hugl, **A. F. Molisch**, and W. Weichselberger, „Smart antennas and MIMO systems"
Full-day tutorial at IEEE ICC ,04, Paris, France

T-16 M. Z. Win and **A. F. Molisch**, "Ultrawideband systems",
Half-day tutorial at IEEE ICC ,04, Paris, France

2003

T-15 M. Z. Win and **A. F. Molisch**, "Ultrawideband systems",
Half-day tutorial at IEEE Globecom ,03, San Francisco, USA

T-14 **A. F. Molisch**, W. Weichselberger, and E. Bonek, "Spatial channels (including MIMO)"
Half-day tutorial at IEEE WPMC Yokosuka, Japan

T-13 M. Z. Win and **A. F. Molisch**, "Ultrawideband systems",
Half-day tutorial at IEEE Consumer Electronics Conf. Los Angeles ,03, USA

T-12 **A. F. Molisch**, A. Kuchar, J. Laurila, and E. Bonek, "Spatial channels and smart antennas":
Half-day tutorial at IEEE VTC fall 2003, Orlando, USA

2002

T-11 **A. F. Molisch**, J. Laurila, K. Hugl, and E. Bonek, "MIMO systems":
Half-day tutorial at IEEE WPMC ,02 Hawaii, USA

T-10 **A. F. Molisch**, A. Kuchar, J. Laurila, and E. Bonek, "Spatial channels and smart antennas":
Full-day tutorial at IEEE PIMRC 2002, Lisbon, Portugal

T-09 **A. F. Molisch** and H. Asplund, "The COST259 channel model"
Half-day tutorial, COST 273 workshop, Helsinki, Finland

T-08 **A. F. Molisch**, A. Kuchar, J. Laurila, and E. Bonek, "Spatial channels and smart antennas":
Full-day tutorial at IEEE VTC'02, Birmingham, USA

T-07 **A. F. Molisch**, A. Kuchar, J. Laurila, and E. Bonek, "Spatial channels and smart antennas":
Half-day tutorial at IEEE ICC'02, New York, USA

2001

T-06 **A. F. Molisch**, A. Kuchar, J. Laurila, and E. Bonek, "Spatial channels and smart antennas":
Full-day tutorial at IEEE VTC'01, Atlantic City, USA

T-05 **A. F. Molisch**, A. Kuchar, J. Laurila, M. Toeltsch, M. Steinbauer, and E. Bonek, "Measurement and simulation of spatial mobile radio channels",
Online Symposium for Electrical Engineers, www.techonline.com

T-04 **A. F. Molisch**, A. Kuchar, J. Laurila, and E. Bonek, "Spatial channels and smart antennas":
Full-day tutorial at EPMCC, Vienna, Austria

2000

T-03 **A. F. Molisch**, A. Kuchar, J. Laurila, and E. Bonek, "Smart antennas in mobile communications",
Online Symposium for Electrical Engineers, fall 2000, www.techonline.com

T-02 **A. F. Molisch**, A. Kuchar, J. Laurila, and E. Bonek, "Spatial channels and smart antennas":
Full-day tutorial at IEEE PIMRC 2000, London, UK

1999

T-01 **A. F. Molisch**, A. Kuchar, J. Laurila, and E. Bonek, "Spatial channels and smart antennas":
Full-day tutorial at IEEE VTC'99, Amsterdam, Netherlands

7.8 KEYNOTES, INVITED TALKS, AND UNREVIEWED CONFERENCE CONTRIBUTIONS

2026

M-227 **A. F. Molisch**, "Propagation Channel Measurements and Models for 6G in Urban Environments", *invited talk at SpectrumX Radio Shop Chat*, 2026.

2025

M-225 **A. F. Molisch**, "Sub-THz propagation channels: measurement, modeling, and impact on system design", ***Keynote*** *at IEEE Milcom Workshop on THz*, October 2025.

M-224 **A. F. Molisch**, "Advances in channel sounding for 6G: cell-free massive MIMO and mmWave/THz massive MIMO", *invited lecture at IEEE IMS Summer School,* June 12, 2025.

M-223 **A. F. Molisch**, "The future of wireless" invited *High-Profile OVE-TU Wien Lecture* June 11, 2025.

2024

M-222 T. Zemen, J. Gomez-Ponce, A. Chandra, M. Walter, E. Aksoy, R. He, D. Matolak, M. Kim, J. Takada, S. Salous, R. Valenzuela, and **A. F. Molisch**, Site-Specific Radio Channel Representation for 5G and Beyond", *COST 21020,* TD(24)09016 (2024).

M-221 **A. F. Molisch**, "Pathloss prediction maps - principles, state of the art, and future research directions," ***Keynote*** *at Workshop on Channel knowledge map for environment-aware communications and sensing at ICCC 2024*, August 7, 2024.

M-220 **A. F. Molisch**, "Delay dispersion in sub-THz propagation channels - measurement and system implications", SEU Summer School, *invited talk*, August2, 2024.

M-219 **A. F. Molisch**, "Delay dispersion in sub-THz propagation channels - measurement and system implications", ***Keynote*** at 6G Channel Measurements and Modeling (6GCMM 2024) Workshop, May 31, 2024.

M-218 **A. F. Molisch**, "RadioMaps - when propagation physics meets machine learning", ***Plenary*** at the 2024 ICASSP workshop on radio maps, April 15, 2024.

2023

M-217 **A. F. Molisch**, "Components for Beyond-5G physical layer", *invited talk at 6G Core Networks Technologies Workshop – NIST*, Sept 12 2023.

M-216 **A. F. Molisch**, "Evaluation methods and modeling aspects of channels", *invited talk at South East University Summer School*, July 2023.

M-215 **A. F. Molisch**, "Components for Beyond-5G physical and network layers", ***Keynote*** *at Convergence Future Communication Colloquium*, Kyung Hee University, May 2023.

2022

M-214 **A. F. Molisch,** Propagation channels for 6G and why they matter for signal processing", ***Keynote*** *at IEEE SPAWC,* July 5, 2022.

2021

M-213 **A. F. Molisch**, "Sub-THz Channels and Communications Systems for 6G", *invited talk at BUPT*, Dec. 13, 2021.

M-212 **A. F. Molisch,** "Sub-THz Channels and Communications Systems for 6G", ***Keynote*** *at IEEE Globecom 2021*, Dec. 9, 2021

M-211 **A. F. Molisch**, "Measurement and modeling of wireless propagation channels between vehicles", ***Keynote*** *at 13th ISAPE*, Dec. 3, 2021.

M-210 **A. F. Molisch**, "Recent results in outdoor mm-wave and THz channels", *invited lecture at SouthEast University*, Nanjing, China, August 12, 2021.

M-209 **A. F. Molisch**, "Teraherz Communications systems", *invited talk at IWPC workshop "Exploring the 6G Vision and Key Enablers*", July 15th, 2021.

M-208 **A. F. Molisch**, "Evolution to 6G", *contribution to The future of wireless Panel Discussion* of APSIPA, May 29th 2021.

M-207 **A. F. Molisch**, "Terahertz propagation channels and communications systems - a key component of B5G", ***IEEE Distinguished Lecture*** *– VTS Australia/New Zealand Chapter*, April 20, 2021.

M-206 **A. F. Molisch**, "Joint radar and communications in existing standards", *Contribution to Panel Discussion on Integration Of Radar Sensing And Communications WCNC 21*, March 30th 2021.

M-205 **A. F. Molisch**, "Measurement and Modeling of Millimeterwave and Terahertz Channel," *Tutorial at The 35th International Conference on Information Networking*, 2021.

M-204 M. Hofer, D. Loeschenbrand_, J. Blumensteiny, H. Groll, S. Zelenbaba, B. Rainer, L. Bernado, J. Vychodil, T. Mikulasek, E. Zochmann, S. Sangodoyin, H. Hammound, B. Schrenk_, A. Prokes, **A. F. Molisch**, C. F. Mecklenbrauker_, and T. Zemen, "Wireless Vehicular Multiband Measurements in Centimeterwave and Millimeterwave Bands", *CA15104TD(21)14032* Online Meeting February 8 - 9, 2021.

2020

M-203 **A. F. Molisch**, "The convergence of wireless communications with distributed computation and storage", **Keynote** at *Strategy Workshop for2030 ICT Technology*, Dec. 2020.

M-202 **A. F. Molisch,** "Sub-terahertz propagation channels and their impact on system design", *invited talk at 6G Industry Forum at Globecom 2020*.

M-203 **A. F. Molisch, "** V2V Propagation Channels Below and Above 6 GHz," *invited talk at KICS Workshop on 6G/Unmanned Vehicle Technology: Road Ahead*, Nov. 27th 2020, Korea.

M-201 **A. F. Molisch**, "Mm-wave and THz channels and systems for high-mobility environments", ***Keynote*** *at IEEE Vehicular Techn. Conf. Fall 2020,* Nov. 20, 2020.

M-200 **A. F. Molisch**, "ToA based localization in multi-path environments", ***Keynote*** *at IEEE RFID 2020 Conf.*, Oct. 7th, 2020.

M-199 **A. F. Molisch**, "Recent results in outdoor mm-wave and THz channels", ***Keynote*** *at IRACON meeting*, Sept. 14, 2020.

M-198 **A. F. Molisch** "Network resilience in 5G", *presentation at panel at ISART*, August 11th, 2020.

M-197 **A. F. Molisch**, "New results in Terahertz and mmWave propagation channels", ***Keynote*** *at IWMTS 2020*, July 3rd 2020.

M-196 **A. F. Molisch**, "ToA based localization in the presence of blockage and multipath", ***Keynote*** *at ICC 2020 Workshop on Advances in Network Localization and Navigation (ANLN*), June 8th 2020.

M-195 **A. F. Molisch**, "Channel measurements and modeling for 0.1-0.5 THz", ***Keynote*** *at 2020 WCNC Workshop on Emerging Terahertz Technology for Future Wireless Systems,* May 28th 2020.

M-194 N. Abbasi, A. Hariharan, A. M. Nair, A. S. Almaiman, F. B. Rottenberg, A. E. Willner, **A. F. Molisch**, "Long-Distance Double Directional Channel Measurements for THz Communications", *GOMACTech-20*, accepted poster. – conference cancelled

2019

M-194 **A. F. Molisch**, "Recent results in wireless edge caching", ***Keynote*** *at the Wireless Edge Intelligence Workshop, IEEE ICC*, Dec. 9th 2019.

M-193 **A. F. Molisch**, "Caching-enabled Device-to-device Communications for Video Transmission", ***IEEE Distinguished Lecture*** at University of British Columbia, Canada, Oct. 18th, 2019.

M-192 **A. F. Molisch**, "MM-wave propagation channels and their impact on 5G system design", ***IEEE Distinguished Lecture*** at University of Victoria, Canada, Oct. 17th, 2019.

M-191 **A. F. Molisch**, "MM-wave propagation channels and their impact on 5G system design", ***IEEE Distinguished Lecture*** at Microsoft, Seattle, Oct. 16th, 2019.

M-190 H. Groll, E. Z□ochmann, M. Hofer, H. Hammoud, S. Sangodoyin, G. Ghiaasi, T. Zemen, J. Blumenstein, A. Prokes, **A. F. Molisch**, C. F. Mecklenbrauker, "60 GHz V2I channel variability for different elevation angle switching strategies", CA15104 TD(19)11051, Gdansk, Sept. 2019.

M-189 **A. F. Molisch**, "MM-wave propagation channels and their impact on 5G system design", *invited talk at National Chiao Tung University*, Taiwan, May 16th 2019.

M-188 **A. F. Molisch**, "Caching-enabled Device-to-device Communications for Video Transmission", *invited lecture at University of California at Irvine*, April. 19th, 2019.

M-187 J. Zhang, K. Yang, Y. Huang, M. Shafi, and **A. F. Molisch**, "Millimeter and THz wave for 5G and beyond, *China Communications* editorial for special issue, **16** (2), iii-vi (2019).

M-186 **A. F. Molisch**, "5G Wireless for IoT", *invited talk at IoT Workshop, University of Southern California*, January 4th 2019.

2018

M-185 J Zhang, M Shafi, AF Molisch, F Tufvesson, S Wu, K Kitao, "Channel Models and Measurements for 5G", *Editorial for Feature Topic, IEEE Communications Magazine*, **56 (12)**, 12-13 (2018).

M-184 **A. F. Molisch**, "New modulation and multiple access for 5G systems", ***Keynote*** *at IEEE Globalsip*, November 28th, 2018.

M-184 **A. F. Molisch**, "Machine learning for wireless propagation channels", *invited talk at ITU Workshop on Machine Learning for telecommunications*", August 2018.

M-183 **A. F. Molisch**, "Measurement and modeling of THz propagation channels", ***Keynote*** *at "First International Workshop on Mobile Terahertz Systems (IWMTS)*", 2018.

M-182 **A. F. Molisch**, "New modulation and multiple access for 5G systems", *Heinrich Hertz Institute, Berlin, invited talk,* June 27th, 2018

M-181 **A. F. Molisch,** "Mm-wave channel measurements – recent results", *Lund University*, *invited talk*, June 19th, 2018.

M-180 **A. F. Molisch**, "New modulation and multiple access for 5G systems", ***IEEE Distinguished Lecture****, Shenzhen,* May 17th, 2018

M-179 **A. F. Molisch**, "New modulation and multiple access for 5G systems", *invited talk, Huawei STW,* May 16th, 2018

M-178 **A. F. Molisch**, "New modulation and multiple access for 5G systems", ***IEEE Distinguished Lecture****,* Shanghai*,* May 14th, 2018

M-177 **A. F. Molisch**, "New modulation and multiple access for 5G systems", ***IEEE Distinguished Lecture****,* Beijing, (BUPT)*,* May 10th, 2018

M-176 **A. F. Molisch**, "New modulation and multiple access for 5G systems", ***IEEE Distinguished Lecture****,* Beijing (Tsinghua Univ.)*,* May 10th, 2018

M-175 **A. F. Molisch**, "New modulation and multiple access for 5G systems", ***IEEE Distinguished Lecture****,* Yokusuka*,* May 8th, 2018

M-174 **A. F. Molisch**, "New modulation and multiple access for 5G systems", ***IEEE Distinguished Lecture****,* Tokyo*,* May 7th, 2018

2017

M-173 **A. F. Molisch**, "Wireless communications in high-mobility environments", ***Keynote*** *IEEE Wireless Communications and Signal Processing Conf. (WCSP)*, October 2017.

M-172 **A. F. Molisch**, "Modulation and multiple access for high-speed train communications", *Chinese Research Center for Railway Safety and Control, Bejing, China*, invited, *July 3rd, 2017.*

M-171 **A. F. Molisch**, "High-Frequency Wireless Propagation Channels - From mm-Wave to THz", *MARIE DFG Meeting, Darmstadt, invited keynote* (2017).

M-170 **A. F. Molisch**, A. Karttunen, S. Hur, J. Park, J. Zhang, "Street-by-street pathloss modeling for urban microcells at mm-wave frequencies", *IEEE Communication Theory Workshop 2017.*

M-169 **A. F. Molisch,** "Channel Modeling for 5G mmW Systems," *International Microwave Symposium 5G Summit*, *invited talk*, 2017

M-168 **A. F. Molisch,** "On pathloss estimation and modeling in wireless communications", *invited talk*, January 2017.

2016

M-167 **A. F.** Molisch, Mm-wave channel measurements, Talk at 5G Silicon Valley summit, November 2016

M-166 **A. F.** Molisch, Mm-wave channel measurements, Talk at 5G Silicon Valley summit, November 2016

M-165 **A. F. Molisch**, "Channels and systems for wireless communications in high-mobility environments", ***Keynote*** *at IEEE VTC Fall 2016*, Sept. 20th 2016, Montreal, Canada.

2015

M-164 **A. F. Molisch**, "Hybrid Transceivers for Massive MIMO – Some Recent Results", ***Keynote*** *at IEEE Globecom workshop on 5G technology*, Dec. 10, 2015, San Diego, CA, USA.

M-163 **A. F. Molisch**, "Millimeter-wave propagation channels for small cells", ***Keynote*** *at IEEE Globecom Workshop on Heterogeneous Networks*, Dec. 6, 2015, San Diego, CA, USA.

M-162 **A. F. Molisch**, "Channel Models and Algorithms for Massive MIMO", *invited lecture at Harbin Institute of Technology*, 2nd Nov. 2015 Shenzhen, China.

M-161 **A. F. Molisch**, "Higher, denser, wilder: the road to 5G", ***Plenary talk*** *at IEEE ICCC 2015*, 2nd Nov. 2015 Shenzhen, China.

M-160 **A. F. Molisch**, "Channel Models and Algorithms for Massive MIMO", ***IEEE Distinguished Lecture***, University of Edinburgh, 23rd June 2015, Edinburg, UK.

M-159 **A. F. Molisch,** "Femto-caching and device-to-device collaboration for wireless video networks", ***IEEE Distinguished Lecture***, York University, 22nd June 2015, York, UK.

M-158 **A. F. Molisch,** "Femto-caching and device-to-device collaboration for wireless video networks", ***IEEE Distinguished Lecture***, King's College London, 19th June 2015, London, UK.

M-157 **A. F. Molisch**, "Channel Models and Algorithms for Massive MIMO", ***IEEE Distinguished Lecture***, Bristol University, 17th June 2015, Bristol, UK.

M-156 **A. F. Molisch,** "Femto-caching and device-to-device collaboration for wireless video networks", ***Keynote*** *at the IEEE ICC Workshop on heterogeneous cells "Smallcell",* June 8th 2015, London, UK.

M-155 **A. F. Molisch**, "Propagation channel models for next-generation wireless communications systems", talk at 10th Tsinghua-USC meeting, 21 May 2015, Beijing, China.

M-154 **A. F. Molisch**, "Femto-caching and device-to-device collaboration for wireless video networks", *invited talk at Beihang University*, 19th May 2015, Beijing, China.

M-153 **A. F. Molisch,** "Towards 5G wireless communications: does the PHY layer still has a role to play?", *invited talk at Beijing Jiaotong University*, 18th May 2015, Beijing, China, 2015

M-152 **A. F. Molisch**, "Propagation channel models for next-generation wireless communications systems", *invited talk at the 34th WWRF meeting*, 24th April 2015, San Jose, CA, USA

M-151 **A. F. Molisch**, Precision Localization of Multiple Passive Targets by Ultrawideband Signals in the Presence of Severe Multipath", *invited talk at the 2nd SIEPC*, 28th April 2015, Riyad, Saudi Arabia.

M-150 **A. F. Molisch,** "Channel measurements for massive MIMO", *invited talk at 2nd Brooklyn 5G Summit*, 6th April 2015, New York, NT, USA.

2014

M-149 **A. F. Molisch**, "Algorithms for FDD-based Massive MIMO", *invited talk at Lund University*, 18th Dec. 2014, Lund, Sweden.

M-148 **A. F. Molisch**, "Channel Models and Algorithms for Massive MIMO", *invited talk at Samsung Research*, 12th Dec. 2014, Richardson, TX, USA.

M-147 **A. F. Molisch**, "Multipath in localization systems: friend or foe?", *invited talk at Purdue University*, Oct. 2014, Lafayette, IN, USA

M-146 M. Segura, S. Niranjayan, P. L. Hsu, **A. F. Molisch**, and H. Hashemi, "Experimental Demonstration of Nanosecond-Accuracy Wireless Network Synchronization", Poster at MHI Research Festival, University of Southern California, Nov. 2014, Los Angeles, CA, USA

M-145 **A. F. Molisch**, "Channel Models and Algorithms for Massive MIMO", *invited talk at Tsinghua Univ*., Oct. 2014, Beijing, China.

M-144 **A. F. Molisch**, "Measuring and modeling of 3D MIMO channels", *talk at Panel on 3D-MIMO at IEEE ICCC*, Oct. 2014, Shanghai, China.

M-143 **A. F. Molisch,** G. Caire, M. Chiang, and T. S. Rappaport, "Higher, Denser, Wilder – Research on 5G", *Intel Workshop on 5G*, Sept. 2014, Santa Clara, CA, USA

M-142 **A. F. Molisch**, "Distributed Storage and Control", *Introduction to the invited session at the IEEE Communication Theory Workshop,* May 2014, Curacao.

M-141 **A. F. Molisch**, "Localization in Multipath and Interference", *invited talk at Lund University*, May 2014, Lund, Sweden.

M-140 M. Zhu, J. Vieira, Y. Kuang, **A. F. Molisch**, and F. Tufvesson, "Tracking and positioning using phase information of multi-path components from measured radio channels", *COST IC 1004, Krakow*, TD(14)11037 (2014).

M-139 **A. F. Molisch** and F. Tufvesson, "Propagation channel models for next-generation wireless communications systems", *COST IC 1004*, Aalborg, TD(14)10071 (2014).

M-138 **A. F. Molisch**, "Multipath in localization systems: friend or foe?", ***Keynote*** *at IEEE ICC Workshop in Advances in Network Localization and Navigation*, June 14, 2014, Sydney, Australia*).*

M-137 **A. F. Molisch**, "Device-to-device Communications", *Talk at Intel/Cisco/Verizon*, 22nd Jan 2014, Malpitas, CA

2013

M-136 G. Caire, **A. F. Molisch**, and M. J. Neely, "Video Caching and D2D Networks", *IEEE COMSOC MMTC E-Letter*, Sept. 2013

M-135 L. Hanzo, **A. F. Molisch**, and R. Vida, "IEEE ICC 2013 concludes with thousands of international communications experts attending hundreds of presentations in Budapest, Hungary", *IEEE Communications Magazine*, vol. 51, issue 8, 14-18 (2013).

M-134 **A. F. Molisch**, "Ultrawideband Localization and Radar", ***IEEE Distinguished Lecture*** at University of Manitoba, Canada, 18th July 2013.

M-133 **A. F. Molisch**, "Cooperative Communications for Cellular and Ad-hoc Networks", ***IEEE Distinguished Lecture*** at University of Florence, 30th June 2013.

M-132 **A. F. Molisch**, "MIMO systems and propagation channels", ***IEEE Distinguished Lecture*** at University of Padova, 24th June 2013.

M-131 **A. F. Molisch**, "Ultrawideband Localization and Radar", ***IEEE Distinguished Lecture*** at University of Rome La Sapienzia, 18th June 2013.

M-130 **A. F. Molisch**, "Cooperation techniques in ad-hoc and infrastructure-based wireless networks", *invited Lecture at TU Ilmenau*, 23rd May 2013.

M-129 **A. F. Molisch**, "Ultrawideband propagation channels and their impact on TOA-based geolocation systems", 16th March 2013.

2012

M-128 Z. Niu, **A. F. Molisch**, and J. Zhang, "Guest Editorial: Selected Papers from IEEE ICCC 2012", *China Communications*, **10,** vii-viii (2012).

M-127 K. Haneda, A. Richter, and **A. F. Molisch**, "Modeling the Frequency Dependence of Ultrawideband Spatio-Temporal Indoor Radio Channels", *IC1004 TD(12)03035*

2011

M-126 M. Paetzold, **A. F. Molisch**, and C. Oestges, "Trends in Mobile Radio Channels-Modeling, Analysis, and Simulation [From the Guest Editors]", *IEEE Vehicular Technology Magazine* **6**, issue 2, 21-22 (2011).

M-125 **A. F. Molisch**, "Using Cellphones as Video Repositories for the Cloud", *Talk at Intel VAWN meeting*, Oct. 20th 2011

M-124 **A. F. Molisch**, "Distributed MIMO Systems", ***Keynote*** *at IEEE ICC Distributed Antenna Workshop*, Dec. 5th 2011.

M-123 **A. F. Molisch**, "Wireless propagation channels and their impact on system design", ***Keynote*** *at 2nd World Congress on Computer Science and Information Engineering (CSIE 2011)*, Changchun, China, June 18th 2011.

M-122 **A. F. Molisch,** "Propagation Aspects of car-to-car communications," *invited lecture for IEEE Beijing Chapter*, Beihang University, June 13th, 2011

M-121 **A. F. Molisch,** "Ultrawideband Localization and Radar", *invited lecture at TU Vienna*, Austria, May 22nd, 2011

M-120 **A. F. Molisch,** J. Karedal, F. Tufvesson, T. Abbas, A. Paier, C.Mecklenbrauker, L.Bernado, "Propagation Aspects of car-to-car communications," *IEEE RWS Workshop on vehicle-to-vehicle communications*, Phoenix, AZ, Jan 15th, 2011.

2010

M-119 **A. F. Molisch,** "Propagation Aspects of car-to-car communications," *iCore Seminar Series, University of Alberta*, Edmonton, Alberta, Canada, USA

M-118 **A. F. Molisch,** Cross-layer Design in Collaborative Wireless Ad-hoc Networks, *Christian Doppler Labor Meeting,* 21. June, 2010

M-117 **A. F. Molisch,** Antenna selection in MIMO systems, *FTW Telekommunikationsforum*, 18. June , 2010.

M-116 J. Salmi, S. Sangodoyin, and **A. F. Molisch**, "High Resolution Parameter Estimation for Ultra-Wideband MIMO Radar", *COST 2100 meeting*, Bologna, Italy, Nov. 2010.

M-115 **A. F. Molisch**, "Wireless Technology for Healthcare", *invited lecture at Caltech*, Pasadena, CA, USA, Nov. 12th, 2010.

M-114 M. Zhu, F. Tufvesson, S. Wyne, G. Eriksson, and **A. F. Molisch**, "Parameterization of 300 MHz MIMO Measurements in Suburban Environments for the COST 2100 MIMO Channel Model", TD(10)11071, 2010.

M-113 **A. F. Molisch**, "Ultrawideband (UWB) communications and ranging for sensor networks", ***IEEE Distinguished Lecture*** *Series*, HongKong University, April 13 2010.

M-112 **A. F. Molisch**, "Cooperation techniques in ad-hoc and infrastructure-based wireless networks", ***Keynote*** *at 2010 International Conference on Communications and Mobile Computing (CMC 2010*).

M-111 J. Salmi, J. Poutanen, K. Haneda, A. Richter, V.-M. Kolmonen, P. Vainikainen, and **A. F. Molisch**, "Incorporating Diffuse Scattering in Geometry-based Stochastic MIMO Channel Models", *COST 2100* TD(10)10047, 2010.

M-110 **A. F. Molisch**, "Spatial channels and MIMO systems", *invited lecture series at Beihang University*, Beijing, China, January 4-6, 2010.

2009

M-109 **A. F. Molisch**, "Ultrawideband radio for short-range communications and localization", *Invited lecture at the Inauguration of the Center for Short-Range Radio, University of Twente*, Netherlands, December 17th, 2009.

M-108 **A. F. Molisch,** "Base Station Cooperation", *invited lecture at opening of Christian Doppler laboratory*, Vienna, Austria, October 13th, 2009

M-107 **A. F. Molisch, "**Cross-layer optimization of wireless collaborative ad-hoc networks", *invited lecture at Communications Colloquium*, Vienna, Austria, October 13th, 2009.

M-106 G. Caire, **A. F. Molisch,** E. Rebeiz, and S. Sreekanta, "Cognitive Medical Environment", *Body Computing Conference*, Los Angeles, CA, September 8th, 2009.

M-105 **A. F. Molisch**, "Multi-user MIMO and Base Station cooperation", ***Keynote*** *at Wireless Personal Multimedia Communications Symposium (WPMC),* Sendai, Japan, September 8th, 2009.

M-104 G. Caire, G. Kramer, and **A. F. Molisch**, "Relaying and cooperation – recent results and suggestions for future work", *Intel Research*, San Jose, CA, May 13th, 2009.

M-103 **A. F. Molisch, "**Cross-layer optimization of wireless collaborative ad-hoc networks", *Invited lecture at Jiaotong University*, Shanghai, China, May 2009.

M-102 **A. F. Molisch, "**Cross-layer optimization of wireless collaborative ad-hoc networks", *Invited lecture at Zhejiang University*, Hangzhou, China, May 2009.

M-101 **A. F. Molisch**, "Distributed MIMO Systems and Base Station Cooperation", *Invited lecture at Beihan University and Beijing IEEE ComSoc Chapter*, Beijing, China, May 2009.

M-100 **A. F. Molisch,** "Sensor Networks for energy-saving applications: physical-layer and cross-layer aspects", *Invited lecture at Tsinghua University*, Beijing, China, May 21st, 2009.

M-99 X. Shen, **A. F. Molisch**, Z. Niu, and H. Zhang, "Selected papers from Chinacom'06", *Springer Wireless Networks*, 15, 419-421 (2009).

2008

M-98 **A. F. Molisch**, "UWB for sensor networks ", ***IEEE Distinguished Lecture***, Singapore, Nov. 27th 2008.

M-97 **A. F. Molisch,** "Cross-Layer Optimization of Wireless Collaborative Ad-hoc Networks", ***IEEE Distinguished Lecture***, Ho-Chi-Minh City, Vietnam, November 21st 2008.

M-96 C. F. Mecklenbraueker, A. Paier, T. Zemen, G. Matz, and **A. F. Molisch**, „On the Temporal Evolution of Signal Subspaces in Vehicular MIMO Channels in the 5 GHz Band", *COST 2100* TD(08)631, 2008.

M-95 A. Paier, J. Karedal, T. Zemen, N. Czink, C. Dumard, F. Tufvesson, C. Mecklenbraueker, and **A. F. Molisch**, "Description of Vehicle-to-Vehicle and Vehicle-to-Infrastructure Radio Channel Measurements at 5.2GHz", *COST 2100* TD(08)636, 2008.

M-94 F. Harryson, J. Medbo, and **A. F. Molisch**, "Indoor Performance of a MIMO Terminal Including User Influence by Comparing a Composite Channel Method with Direct Measurements", *COST 2100* TD(08)661, 2008.

M-93 **A. F. Molisch**, "UWB for sensor networks ", *invited lecture at Beijing University of Post and Telecomm*, Beijing, China, May 27th, 2008.

M-92 **A. F. Molisch,** "Cross-Layer Optimization of Wireless Collaborative Ad-hoc Networks", ***IEEE Distinguished Lecture***, Beihan University,Beijing, China, May 23rd, 2008.

M-91 **A. F. Molisch,** "Cross-Layer Optimization of Wireless Collaborative Ad-hoc Networks", invited lecture at Boston University, Boston, MA, USA, April 25th, 2008.

M-90 **A. F. Molisch,** "Cross-layer Design in Collaborative Wireless Ad-hoc Networks", ***IEEE Distinguished Lecture***, Ames, IA, USA, March 24th 2008.

M-89 **A. F. Molisch**, "UWB for sensor networks ", ***IEEE Distinguished Lecture***, Rochester, MN, USA, March 24th 2008.

M-88 J. Karedal, F. Tufvesson, **A. F. Molisch,** N. Czink, A. Paier, C. F. Mecklenbraeuker, C. Dumard and T. Zemen, "Geometry-Based Stochastic Channel Modeling of a Vehicle-to-Vehicle Radio Channel", *COST 2100* TD(08) 473, 2007.

M-87 A. Richter, F. Tufvesson, P. Salvo Rossi, K. Haneda, J. Koivunen, V.-M. Kolmonen, J. Salmi, P. Almers, P. Hammarberg, K. P¨ol¨onen, P. Suvikunnas, **A. F. Molisch**, O. Edfors, V. Koivunen, P. Vainikainen, and R. R. Mueller, "Wireless LANs with High Throughput in Interference-Limited Environments – Project Summary and Outcomes", *COST 2100* TD(08) 432, 2008.

2007

M-86 **A. F. Molisch**, „MIMO antennas, propagation channels, and their impact on system design", ***Keynote*** *at IEEE ISWCS*, Trondheim, Norway, Oct. 18th 2007.

M-85 C. F. Mecklenbräuker, A. Paier, J. Karedal, N. Czink, H.Hofstetter, C. Dumard, T. Zemen, F. Tufvesson, **A. F. Molisch**, „Challenges in vehicular communications for impactive systems - Dynamics, Doppler, and Delay", JWCC 2007, Oct. 16th 2007.

M-84 **A. F. Molisch**, „Cooperative communications for ultrareliable wireless systems", *invited talk at Chinacom 2007*, August 22nd, 2007

M-83 **A. F. Molisch**, "UWB channels and their interaction with system design", *invited lecture at Shanghai Jiatong University*, Shanghai, China, August 21st, 2007.

M-82 A. F. Molisch, **"**Antenna Selection and RF Processing for MIMO Systems**",** *invited lecture at Shanghai Jiatong University*, Shanghai, China, August 21st, 2007.

M-81 A**. F. Molisch**, „Low-data-rate UWB communications – the theory of making it practical", *IEEE Communication Theory Workshop 2007*

M-80 N. Devroye, N. B. Mehta, and **A. F. Molisch**, „Asymmetric Cooperation Among Relays with Linear Precoding", *IEEE Communication Theory Workshop 2007.*

2006

M-79 **A. F. Molisch**, "Cross-layer Design in Collaborative Wireless Ad-hoc Networks", *invited lecture at University of Connecticut*, Storrs, CT, Nov. 3rd, 2006.

M-78 **A. F. Molisch**, **"**Antenna Selection and RF Processing for MIMO Systems**",** *invited lecture at Boston University*, Boston, MA, Oct. 1st, 2006.

M-77 **A. F. Molisch**, "UWB communication systems for sensor networks", *invited lecture at Yale University*, New Haven, CT, Sept. 13th, 2006.

M-76 **A. F. Molisch**, "UWB channels and their interaction with system design", *invited lecture at Tsinghua University*, Beijing, June 23rd, 2006.

M-75 **A. F. Molisch, "**Antenna Selection and RF Processing for MIMO Systems**",** *invited lecture at Tsinghua University*, Beijing, June 23rd, 2006.

M-74 **A. F. Molisch**, "UWB channels and their interaction with system design", *invited lecture at MIT*, Boston, MA, April 20th, 2006.

M-73 **A. F. Molisch,** "UWB for sensor networks – the 802.15.4a standard", *invited lecture at Center of Excellence for Embedded Wireless Systems, University of L'Aquila*, Italy, March 30th 2006.

M-72 **A. F. Molisch,** "UWB for sensor networks – the 802.15.4a standard", ***Keynote*** *at the UBC-IEEE Workshop on Future Wireless Systems*, Vancouver, March 10th 2006.

M-71 **A. F. Molisch, "**Antenna Selection and RF Processing for MIMO Systems**",** *invited lecture at University of Toronto*, Feb. 03rd 2006.

M-70 **A. F. Molisch, "**UWB for sensor networks – the IEEE 802.15.4a standard**",** *invited lecture at University of Waterloo*, Feb. 02nc 2006.

2005

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8. PATENTS SUMMARY

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Areas of the inventions:

- Smart antennas and MIMO systems
- Ultrawideband communications, ranging, and localization:
- Ad-hoc networks and cooperative communications:
- Modulation and multiple access
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9. INDUSTRIAL CONTRIBUTIONS SUMMARY

More than 80 contributions to international standardization organizations

9.1 STANDARDIZATION DOCUMENTS - IEEE

A total of more than **60** contributions to

- IEEE 802.15.3a: high-data-rate ultrawideband communications
- IEEE 802.11n: MIMO-based high-data-rate wireless LANs
- IEEE 802.15.4a: low-data-rate ultrawideband-based sensor networks
- IEEE 802.16m: advanced WiMax (large-area data transmission to mobile and fixed terminals)

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9.2 STANDARDIZATION DOCUMENTS - 3GPP AND ITU

A total of more than 20 contributions to 3GPP. The 3GPP does not list individuals as contributors, but only member entities. My contributions were filed with affiliations AT&T, Mitsubishi Research Labs, Cohere Technologies, and Samsung.

One contribution to ITU-R; since ITU makes contributions per country, this was filed as a US contribution.

9.3 INDUSTRIAL RESEARCH REPORTS

More than 50 research reports for companies, both internally for MERL, AT&T, FTW, Cohere Technologies (sabbatical) and Samsung (sabbatical) as well as reports for industrial partners. Titles and details of those reports are confidential.