

CURRICULUM VITAE

NAME : Fabien J. Josse

ACADEMIC RANK: Professor of Electrical, Computer, and Biomedical Engineering
Department of Electrical and Computer Engineering
Marquette University, P.O. BOX 1881
Milwaukee, Wisconsin 53201-1881
Tel: 414-288-6789
E-mail: fabien.josse@marquette.edu

FIELD OF SPECIALIZATION: Solid-State and Acoustic Wave Device Sensors (Chemical Sensors, Biochemical Sensors, Biosensors), Micro-electro-mechanical Systems (MEMS) Devices and Sensors, Optical Waveguide-based Sensors; Smart Sensors Systems.

EDUCATION:

1982 Ph.D. in Electrical Engineering
University of Maine at Orono
Orono, Maine 04469

1979 M.S. in Electrical Engineering
University of Maine at Orono
Orono, Maine 04469

1976 Licence (B.S.) en Mathématiques, Physiques,
Université du Bénin

RELEVANT BACKGROUND:

Electromagnetic Theory and Wave Propagation
Solid State Physics and Devices
Acoustic Waves in Piezoelectric Materials
Integrated Optics and Fiber Optics Communications
System Analysis
Digital Signal Processing & Modern Control Theory

ACADEMIC & SCHOLARLY EXPERIENCE:

1994-Present Professor of Electrical and Computer Engineering,
Department of Electrical and Computer Engineering,
Marquette University, Milwaukee, WI 53233.

1997-Present	Professor of Biomedical Engineering, Department of Biomedical Engineering, Marquette University, Milwaukee, WI 53233.
2001- 2009 & 2012-20	Director of Graduate Studies, Department of Electrical and Computer Engineering, Marquette University, Milwaukee, WI 53233.
2002-Present	Visiting Professor, Laboratoire IMS and U. de Bordeaux 1, Bordeaux, France
May 2003-July 2003 & 2004 (Sabbatical)	Visiting Professor, Physical Electronics Laboratory, Swiss Federal Institute of Technology (ETH), Zurich, Switzerland.
Spring 2010 (Sabbatical) & Summer 2012	Visiting Prof., IMTEK University of Freiburg, Germany
Sept. 1991-Present	Adjunct Professor of Electrical Engineering, and Laboratory for Surface Science and Technology (LASST), University of Maine, Orono, Maine.
Jan. 1990-Aug. 1990 Jan 1997-May 1997	Professor, Angewandte Physics Institute and Angew. Physikalische Chemie Institute der Universität Heidelberg, Heidelberg, Germany. (Sabbatical years).
1990 - 2012	Visiting Professor, Angewandte Physikalische Chemie Institut der Universität Heidelberg, Heidelberg, Germany.
1995-Present	Director of the Microsensor Research lab., Marquette University
1988-1994	Associate Professor of Electrical Engineering, Department of Electrical and Computer Engineering, Marquette University, Milwaukee, WI 53233.
1982-1988	Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, Marquette University, Milwaukee, WI 53233
Summer 1998, 1999, 2000	Visiting Scientist, Microsensor Research and Development Department, Sandia National Laboratories, Albuquerque, New Mexico

1978-May 1982 Research Assistant, Surface Acoustic Wave Group,
Electrical Engineering Department and Laboratory for
Surface Science and Technology, University of Maine,
Orono, Maine.

Research in the following areas:

- New types of acoustic waves for signal processing applications
- Temperature compensation of surface acoustic wave and surface skimming bulk wave devices
- SAW filters, oscillators and resonators design
- Microwave acoustic measurements
- Thin film technology including sputtering techniques
- SAW device fabrication technology
- SSBW temperature sensor

1977-1978 Research Assistant, High Vacuum Electron Beam
Evaporation System for Thin Film Fabrication - Vacuum
Technology, Solid State Laboratory, Electrical Engineering
Department, University of Maine, Orono, Maine.

PRESENT RESEARCH INTERESTS:

- Solid-State devices, Optical waveguides, and acoustic wave-based chemical and biochemical sensors for gas and liquid-phase detections.
- Systematic characterization of new sensor principles and chemically sensitive coating materials.
- Investigation of novel chemical and biochemical liquid-phase sensor platforms.
- Optimization of all components in a complete sensor system including pattern recognition approaches.
- MicroElectroMechanical Systems (MEMS) Devices for Sensors Applications.
- Smart Sensor Systems

CONSULTING EXPERIENCE:

1985-88 Consultant to Symbion, Inc. (Ex. Kolff Medical), Salt Lake
City, Utah.

1986 Consultant to RF Monolithics, Dallas, Texas.

1987-present. Consultant to Biode, Inc., Portland, Maine.

1992-94	Consultant to Bionics Technologies, Inc., Waukesha, Wisconsin
1997-2010	Consultant/Contractor to Sandia National Laboratories, Albuquerque, New Mexico
2001-03	Consultant/Contractor to Science Applications International Corporation (SAIC), McLean, Virginia

PROFESSIONAL AFFILIATIONS and ACTIVITIES:

Institute of Electrical and Electronics Engineers (IEEE),	1979 – present
Life Senior Member	2017- present
Senior Member	1993 – 2017
Member	1982 - 1993
Student Member	1979 - 1982
IEEE Milwaukee Section Executive Committee : Director	1991 -1993
IEEE Microwave Theory and Techniques Society and IEEE Electron Device Society (IEEE - MTT/ED), Milwaukee Chapter: Chairman	1985 - 1988
IEEE Laser and Electro-Optics Society (IEEE/LEOS)	
IEEE Ultrasonics, Ferroelectrics and Frequency Control Society (IEEE/UFFC)	
Technical Paper Reviewer for IEEE Transactions on UFFC	1982 - present
Acoustical Society of America (ASA)	
Technical Paper Reviewer for the Journal of Acoustical Society of America (JASA)	1984 - present
Optical Society of America (OSA)	
The Electrochemical Society	1994 - 2004
○ Proposal Reviewer for the National Science Foundation (NSF), and the Small Business Innovative Research (SBIR) Program	1987 - present
○ Proposal Reviewer for the Department of Energy (DOE), SBIR Program	1989 - present
○ Proposal Reviewer for SBIR Program, National Science Foundation	2004-Pres.
○ Proposal Reviewer for The Research Committee of Hong Kong	1994 - 1996
○ Publication Reviewer for Various Journals, including: IEEE Proceedings, IEEE Transactions Ultrasonics, Frequency Control and Ferroelectrics, Microwave Theory and Techniques, Journal of Applied Physics Applied Physics Letters, Journal of Acoustical Society of America,	

Sensors & Actuators, Sensor Letters, Electron. Lett., Analytical Chemistry, IEEE Sensors Journal, IEEE Sensors Letters 1984-Present

- Serve on numerous National Institute of Health (NIH), and National Science Foundation (NSF) Education and Research Review Panels.

SCIENTIFIC ACTIVITIES

Chair or Co-Chair of Sessions at various Conferences and Symposia including the IEEE International Frequency Control Symposia, IEEE Sensors Conferences, Sensor Symposia of the Electrochemical Society (ECS Sensor Division), and SPIE Chemical Microsensors & Applications Symposia.

Chair and Discussion Leader for the Chemical Sensor Platforms Session of the 2000 Gordon Research Conferences (GRC) on Chemical Sensors & Interfacial Design (01/2000).

Associate Editor, IEEE Sensors Journal (2002-2010)

Associate Editor, IEEE Sensors Letters (2017- Present)

Member of Editorial Board, Sensors Letters (2003- Present)

Member Editorial Board, and Editor (North America), Sensors and Transducers Journal (2006-Present)

Chair, IEEE Standards Subcommittee on Sensors, Actuators and Transducers (2002-2006)

NATO Advanced Study Institute on Smart Sensors and MEMS (Lecturer and Discussion Panel Leader), 7-19 Sept. 2003, Povoá de Varzim, Portugal

NSF Review Panels, ECS-Sensor Small Teams (SST),
NIH Review Panels: National Institute of Allergy and Infectious Diseases (NIAID)-
International Collaborations in Infectious Disease Research (ICIDR)
NIH Review Panels: Instrumentation and System Development (ISD)

Department of Homeland Security (DHS) Science & Technology-Based Initiatives Workshop for Transformative Breakthroughs in Explosive Detection.

LISTING:

Who's Who Worldwide

HONORS, AND HONORARY SOCIETIES:

The New York Academy of Sciences	1988 - present
Sigma Xi, The Scientific Research Honor Society	1979-present
Eta Kappa Nu, the Electrical Engineering Honor Society	1978-present
Life Senior Member	2017- present

AWARDS, FELLOWSHIPS AND CITATIONS:

- Sigma Xi Student Research Award, University of Maine	1980
- IEEE Student Award - Ultrasonics Symposium	1981
- Marquette University Summer Faculty Fellowship	1986
- Marquette University Research Challenge Grant (\$100,000)	1995
- The Marquette University Chapter of Sigma Xi Award for Distinguished Scientific Research Achievement	1999
“Guided SH-SAW Sensor Platform” cited as Sandia National Labs Accomplishment of the Year (Device was introduced and designed by F. Josse and A. Ricco under a subcontract)	2000
- Marquette University College of Engineering 2011 Outstanding Researcher Award	2011
- Marquette University Lawrence G. Haggerty Faculty Award for Excellence in Research	2013

MAJOR COURSES DEVELOPED:

	Level
- Electromagnetic Theory	Graduate
- Optical Fiber Communications	Senior-Graduate
- Physical Principles of Solid-State Devices	Senior
- Sensors and Actuators	Senior/Graduate
- Sensor Devices: Theory, Design & Applications	Senior/Graduate
- Micro-Electro-Mechanical Systems and Sensors	Graduate
- Infrared and Photonic Sensor: Theory and Applications	Graduate
- Theory of Acoustic Waves and Device Applications	Graduate

MAJOR COURSES REDESIGNED:

	Level
- Linear Systems Analysis	Junior
- Advanced Engineering Mathematics	Graduate
- Probability and Random Processes in Engineering	Graduate

OTHER MAJOR COURSES TAUGHT:

	Level
- Simulation Laboratory (Intro. to Computer Science) (U. Maine)	Sophomore
- Material Science	Sophomore
- Solid State Engineering	Junior-Senior
- Linear Systems Analysis	Junior
- Circuit Analysis (U. Maine)	Sophomore
- Analog Electronics	Junior
- Digital Electronics	Junior

- Electronic Devices
- Electromagnetic Fields
- SAW Devices

Sophomore
Junior
Graduate

FUNDED RESEARCH GRANTS AND CONTRACTS

Committee on Research (COR) Grant, Marquette University, "Temperature Dependence of Surface Skimming Bulk Wave Devices", Summer 1983. \$ 1,500

National Science Foundation (NSF) Research Initiative Grant, "Study of Reflected Bulk Wave for Microwave Acoustic and Acoustoelectric Device Applications", May 1983 - June 1985, Project Director/ Principal Investigator. \$47,832

Symbion, Inc. (Ex. Kolff Medical, Inc.) Research Grant, "Development of an Ineraid Hearing Aid Implant Utilizing Acoustic Wave Devices," Jan. 1986 - Jan. 1987 (Co-Principal Investigator with Dr. Dean C. Jeutter). \$71,380

Symbion, Inc. Research Grant, "Cochlear Prosthesis Radio Link", Phase II, Jan. 1987 - Jan. 1988, (Co-Principal Investigator with Dr. Dean C. Jeutter). \$51,460

National Science Foundation (NSF) Research Grant, "Study of Subsurface Acoustic Waves for Liquid Chemical Microsensor Applications," Jan. 1989 - June 1992, Project Director/ Principal Investigator. \$193,000

Cooper Power Systems, Inc. Research Grant, "A Study of Advanced Sensors for Power Distribution Systems," Sept. 1989 - Jan. 1990 (Co-Principal Investigator with Dr. Abd A. Arkadan). \$20,000

Fleck Controls, Inc. Research Grant, "Acoustic Wave Liquid-phase-based Microsensors," Sept. 1989 - Dec. 1991, Project Director/ Principal Investigator. \$178,787

Fleck Controls, Inc. Research Grant, "Study of Electrostatic Water Conditioners," January-June 1991, Project Director/ Principal Investigator. \$48,738

Fleck Controls, Inc. Research Grant, "Study of Electrostatic Antiscaling Devices," Phase II, Sept. 1991 - July 1992, Project Director/ Principal Investigator. \$97,904

Biotronics, Inc./ NASA Research Grant, "An on-line Microbiological Analyzer", June 1992 - May 1993, Project Director/ Principal Investigator. \$29,820

Fleck Controls, Inc. Research Grant, "Study of the Effect of Electric Field on Water Particles - Antiscaling Devices," Phase III, Sept. 1992 - Aug. 1993, Project Director/Principal Investigator. \$124,975

Fleck Controls, Inc. Research Grant, "Study of the Effect of Electric Field on Water Particles - Antiscaling Devices," Sept. 1993 - Aug. 1994, Project Director/Principal Invest.	\$110,508
SPECS GmbH, Berlin, Germany, "Analysis and Characterization of Acoustic Wave Immunosensors," Sept. 1994, Project Director/Principal Investigator	\$ 14,572
Fleck Controls, Inc. Research Grant, "Electric and Magnetic Antiscaling Devices," Sept. 1994 - Aug. 1995, Project Director/Principal Investigator	\$ 22,000
Kimberly-Clark, Inc. Research Grant, "Microsensor for the Detection of Selected Environment Pollutants," Nov. 1994 - Dec. 1996, Project Director/Princ. Invest.	\$374,715
Marquette University Challenge Grant, Sept. 1996, Project Dir./Princ. Invest.	\$100,000
Kimberly-Clark, Inc. Research Grant, Phase II, "Microsensor for the Detection of Selected Environment Pollutants", Jan. 1997 - Dec. 1997, Project Director/Principal Invest.	\$150,000
Kimberly-Clark, Inc. Research Grant, Phase III, "Microsensor for the Detection of Selected Environment Pollutants", Dec. 1997 - Dec. 1998, Project Director/Principal Invest.	\$100,000
Sandia National Lab. (DOE), "SH- Surface Wave Sensor Platform for Chemical and Biological Applications in Liquid Environments", Jan. 99 – Aug. 99, Project Director/Prin. Invest.	\$37,518
Biode Inc./EPA, "Determination of Hexavalent Chromium in Liquid Environments Using Electrochemical Acoustic Wave Device", Nov. 98- Feb. 99, Project Director/ Prin. Invest.	\$10,000
Sandia National Lab. (DOE), "SH- Surface Wave Sensor Platform for Chemical and Biological Applications in Liquid Environments", Sept. 99 – Aug. 00, Project Director/Prin. Invest.	\$ 60,000
Biode Inc./EPA, "Hybrid Electrochemical Piezoelectric Sensor for RCRA Metals in Water: Detection of Hexavalent Chromium", Oct. 99- Dec. 2000, Project Director	\$35,000
National Science Foundation (NSF), "Acoustic Wave Sensors for In-Situ Detection and Characterization of Organic Contaminants in Aqueous Solutions", Feb. 2000- Jan.03 Project Director/Prin. Invest.	\$237,900
National Science Foundation (NSF), " NSF Equipment Supplemental", March 2001 Project Director/Prin. Invest.	\$48,000
U.S. Department of Education, "Electrical Engineering GAANN Fellowship in Smart Sensor Systems", (E.Yaz, F. Josse and S. Schneider), Sept. 2004-09	\$468,672

U.S. Department of Agriculture, “Development of Chemical Sensors for Measuring Antioxidant Levels in Food”, (J. Hossenlopp and F. Josse), Sept. 2007-09 \$100,000

National Science Foundation (NSF), “Use of Novel Excitation Schemes for Resonant Microcantilevers in Liquid-phase Sensing”, Sept. 2008- August 2011, Project Director/Prin. Invest. \$659,975

National Science Foundation – Research Experience for Undergraduates (NSF- REU), “Use of Novel Excitation Schemes for Resonant Microcantilevers in Liquid-phase Sensing”, Project Director/Prin. Invest., 2009 \$12,000

UWM Research Foundation SWETRC Seed Grant Program, “High Capacity Li-Ion batteries Based on SnO₂ Nanoparticles”, (Co- Prin. Invest. with Junhong Chen), June 2009- June 2010, \$80,000

Chevron Inc. “Guided SH-Surface Acoustic Wave Chemical Sensor for Monitoring BTEX and TPH in Aqueous Environments”, Nov. 2009 – Dec. 2016, Project Director/Prin. Invest., \$2,844,765

WERC Seed Grant Program, “Current sensors for smart grid applications”
Co-Principal Invest. with Chiu Tai Law, Sept. 2010 – Sept. 2011, \$90,000/ (MU: \$36,450)

Industry/University Cooperative Research Center for Water Equipment and Policy (IUCRC)-Baker manufacturing, “Chemical Sensors for Monitoring contaminants in Aqueous Environments”, Project Director/Prin. Invest., June 2010-June 2013, \$200,000

WERC Seed Grant Program, “Enhancements of fiber optics current sensors for metering applications”, Co-Principal Invest. with Chiu Tai Law, Nov. 2011 – Dec. 2012. \$99,000/ (MU: \$45,000)

National Science Foundation (NSF), “Collaborative Research: Micromachined In-Plane Resonator Arrays with Integrated Temperature”, Sept. 2011- August 2014, Project Director/Prin. Invest., Project Director/Prin. Invest. Georgia Tech: \$200,000 and Marquette: \$300,000; \$500,000

U.S. Department of Education, “Electrical Engineering GAANN Fellowship in Smart Sensor Systems”, (E.Yaz, F. Josse and S. Schneider), Sept. 2012-15, \$400,000

Ford Motor Company University Research Program: “Battery State Monitoring Via Magnetic Sensing: Measuring Cell Capacity and SOC Using SAW-Based Magnetic Sensor”, Jan. 2017 – Dec. 2019, Project Director/Prin. Invest. \$150,000

Marquette University Innovation Grant: “On-Site Screening of Wastewater and Freshwater for Micropollutants Using a Sensor-Based Detection System”
July 2016 – June 2018, Project Director/Prin. Invest. \$213,037

U.S. Department of Education, GAANN Program in Electrical Engineering”, (E. Yaz, S. Schneider and F. Josse), U.S. Department of Education. October 1, 2018- 21. \$597,000

Badger Meter, “Design and Implementation of test system for accelerated deposit formation and monitoring”, Prin. Invest. (F. Bender, F. Josse). Jan. 2019 – Dec. 2020, \$100,000

PUBLICATIONS:

A. Journal Articles:

Fabien Josse and John F. Vetelino, "Acoustic Wave Properties and Device Characterization of 55° Rotated Y-cut Quartz", Applied Physics Letters, Vol. 37, p. 1062, 1980.

Dana S. Bailey, Fabien Josse, Donald L. Lee, Jeffrey C. Andle, Waldemar Soluch, John F. Vetelino and Bruce H. T. Chai, "A Study of the SAW Properties of Temperature Compensated Orientations in Berlinite (AlPO₄)", Electronics Letters, Vol.18, pp. 168-170, 1981.

Fabien Josse and Donald L. Lee, "Analysis of Excitation, Interaction and Detection of Surface and Bulk Acoustic Waves on Piezoelectric Substrates", IEEE Trans. on Sonics and Ultrasonics, Vol. SU-29, No. 5, pp. 261-273, 1982.

Fabien Josse, "Temperature Dependence of SH-Wave on Rotated Y-cut Quartz with SiO₂ Overlay", IEEE Trans. on Sonics and Ultrasonics, Vol. SU-31, No. 3, pp. 162-168, 1984.

Fabien Josse, "Amplification of Surface Skimming SH-Waves in Rotated Y-cut Quartz/Dielectric Film/Semiconductor Structure", Journal of the Acoustical Society of America, Vol. 78, No.3, pp. 964-969, 1985.

Fabien Josse, Jeffrey C. Andle, John F. Vetelino and Waldemar Soluch, "Characteristics of Reflected Bulk Acoustic Waves in Rotated Y-cut Quartz", IEEE Trans. on Ultrasonics, Ferroelectrics, and Frequency Control, Vol. UFFC-33, No. 6, pp. 692-697, 1986 (also in Electronics and Communications Abstracts Journal, Vol. 20, No. 2, p. 348, 1987).

Fabien Josse, "Analysis of the Amplification and Convolution of Reflected Bulk Acoustic Waves in a Piezoelectric/Semiconductor Structure", Journal of Acoustical Society of America, Vol. 81, No. 6, pp. 1767-1774, 1987.

Fabien Josse and Zack A. Shana, "Analysis of Shear Surface Waves at the Boundary between a Piezoelectric Crystal and a Viscous Fluid Medium", Journal of Acoustical Society of America, Vol. 84, No. 3, pp. 978-984, 1988.

Fabien Josse and Zack A. Shana, "Effects of Liquid Relaxation Time on SH-Surface Waves Liquid Sensors", Journal of Acoustical Society of America, Vol. 85, No. 4, pp. 1556-1559, 1989.

Ryszard Lec, John F. Vetelino, Phillip Clarke and Fabien Josse, "Prototype Microwave Acoustic Fluid Sensors", Journal of Wave-Material Interaction, Vol. 4, No. 1-3, pp. 31-42, 1989.

Fabien Josse, Zack A. Shana, David E. Radtke, Uday R. Kelkar and Daniel T. Haworth, "Quartz Resonator as Sensor for Viscous/Conductive Liquids", Electronics Letters, Vol. 25, pp. 1446-1447, 1989.

Zack A. Shana, David Radtke, Uday R. Kelkar, Fabien Josse and Daniel T. Haworth, "Theory and Applications of a Quartz Resonator as a Sensor for Viscous Liquids", Analytica Chimica Acta, Vol. 231, pp. 317-320, 1990.

Fabien Josse, Zack A. Shana, David E. Radtke and Daniel T. Haworth, "Analysis of Piezoelectric Bulk Acoustic Wave Resonators as Detectors in Viscous Conductive Liquid", IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control, Vol. 37, No. 5, pp. 359-368, 1990.

Fabien Josse, Daniel T. Haworth, Uday R. Kelkar and Zack A. Shana, "LiNbO₃ Acoustic Plate Mode Sensor in Dilute Ionic Solutions", Electronics Letters, Vol. 26, No. 13, pp. 834-835, 1990.

Fabien Josse and Zack A. Shana, "Acousto-Ionic Interaction of SH Surface with Dilute Ionic Solutions," IEEE Trans. on Ultrasonics, Ferroelectrics and Frequency Control, Vol. UFFC-38, No. 3, pp. 297-304, 1991.

Uday R. Kelkar, Fabien Josse, Daniel T. Haworth and Zack A. Shana, "Acoustic Plate Waves for Measurements of Electrical Properties of Liquids", Microchemical Journal, Vol. 43, pp. 155-164, 1991.

Fabien Josse, Zack A. Shana, Daniel T. Haworth, Su-lin Liew and Michael Grunze, "On the Use of ZX-LiNbO₃ Acoustic Plate Mode Sensors for Dilute Electrolytes Solutions", Sensors and Actuators B, Vol. 9, No. 2, pp. 97-112, 1992.

Fabien Josse and Zack A. Shana, "Electrical Surface Perturbation of a Piezoelectric Acoustic Plate Mode by a Conductive Liquid Loading," IEEE Trans. on Ultrasonics, Ferroelectrics and Frequency Control, Vol. 39, No. 4, pp. 1-7, 1992.

Reiner Dahint, Michael Grunze, Fabien Josse and Jeffrey C. Andle, "Probing of Strong and Weak Electrolytes with Acoustic Wave Fields", Sensors and Actuators B, Vol. 9, No. 2, pp. 113-120, 1992.

Zack A. Shana and Fabien Josse, "Reflection of Bulk Waves at a Piezoelectric Crystal-Viscous Conductive Liquid Interface", Journal of Acoustical Society of America, Vol.91, No. 2, pp. 854-860, 1992.

Reiner Dahint, Fabien Josse, Zack A. Shana, Susan A. Riedel and Michael Grunze, "Identification of Metal Ion Solutions Using Acoustic Plate Mode Devices and Pattern Recognition", IEEE Trans. on Ultrasonics, Ferroelectrics and Frequency Control, Vol. UFFC-40, No.2, pp. 114-120, 1993.

Jeffrey C. Andle, Jay T. Weaver, Douglas J. McAllister, Fabien Josse, and John F. Vetelino, "Improved Acoustic Plate Mode Biosensors", Sensors and Actuators B, Vol. 13-14, No. 1-3, pp. 437-442, 1993.

Dean C. Jeutter and Fabien Josse, "Design of a Radio-linked Implantable Cochlear Prosthesis Using Surface Acoustic Wave Devices", IEEE Trans. on Ultrasonics, Ferroelectrics and Frequency Control - UFFC, Vol. UFFC-40, No. 5, pp. 469-477, 1993.

Reiner Dahint, Fabien Josse and Michael Grunze, "Analyse des Salzgehaltes von Lösungen mit Ultraschall", Spektrum der Wissenschaft, 7, 1993, pp. 24-26, 1993.

Fabien Josse, Florian Bender, Reiner Dahint, Michael Grunze and Manfred v. Schikfus, "Mass Sensitivity of APM Liquid Sensors on ZX-LiNbO₃", J. Acoust. Soc. America - JASA Vol. 95, pp. 1386-1389, 1994.

Fabien Josse, "Acoustic Wave Liquid-Phase-Based Microsensors" Sensors and Actuators A, Vol. 44, pp. 199-208, 1994.

Zack A. Shana, Hua Zong, Fabien Josse and Dean C. Jeutter, "Analysis of Electrical Equivalent Circuit of Quartz Crystal Resonator (QCR) Loaded with Viscous Conductive Liquids", Journal of Electroanalytical Chemistry, Vol. 379, pp. 21-33, 1994.

Zack A. Shana and Fabien Josse, "Quartz Crystal Resonators as Sensors in Liquids Using the Acoustoelectric Effect", Analytical Chemistry, Vol. 66, pp. 1955-1964, 1994.

Reiner Dahint, Michael Grunze, Fabien Josse and Joachim Renken, "An Acoustic Plate Mode Sensor for Immunochemical Reactions", Analytical Chemistry, Vol. 66, No. 8, pp. 2888-2892, 1994.

Fabien Josse, Jeffrey C. Andle, John F. Vetelino, Michael Grunze and Reiner Dahint, "Theoretical and Experimental Study of Mass Sensitivity of PSAW-APMs on ZX-

LiNbO₃", IEEE Trans. on Ultrasonics, Ferroel. and Freq. Control - UFFC - Vol. UFFC-42, No. 4, pp. 517-524, 1995.

Fabien Josse, Joachim Renken, Reiner Dahint and Michael Grunze, "Multi-Frequency Evaluation of Different Immunosorbents on Acoustic Plate Mode Sensors", Analytical Chemistry, vol. 68, No. 1, pp. 176-182, 1996.

Fabien Josse, Reiner Dahint, Michael Grunze, J. C. Andle and John F. Vetelino, "On the Mass Sensitivity of Acoustic Plate Mode Sensors", Sensors and Actuators: A. Vol. 53 No. 1-4, pp. 243-248, 1996.

Rongnong Zhou, Fabien Josse, Wolfgang Göpel, Z. Z. Öztürk and O. Bekaroglu, "Phtalocyanines as Sensitive Materials for Chemical Sensors", Applied Organometallic Chemistry - Vol. 10, pp. 557-577, 1996.

R. Ros Seigel, Philip Harder, Reiner Dahint, Michael Grunze, and Fabien Josse, "Detection of Non-specific Protein Adsorption at Artificial Surfaces by the Use of Acoustic Plate Mode Sensors", Sensors and Actuators: B, Vol. 35-36, pp. 497-505, 1996.

Fabien Josse, Richard Lukas, Rongnong Zhou, and Dennis Everhart, "AC-Impedance-based Chemical Sensors for Organic Solvent Vapors", Sensors and Actuators: B, Vol.35-36, pp.363-369, 1996.

Rongnong Zhou, Moses Haimbodi, Dennis Everhart and Fabien Josse, "Polymer-coated QCR Sensors for the Detection of Organic Solvents in Water" Sensors and Actuators: B , Vol. 35-36, pp. 176-182, 1996.

Florian Bender, Frederike Meimeth, Reiner Dahint, Michael Grunze and Fabien Josse, "Mechanisms of Interaction in Acoustic Plate Mode Immunosensors", Sensors and Actuators: B, Vol. 40, pp. 105-110, 1997

R. Ros Seigel, Philip Harder, Reiner Dahint, Michael Grunze, Fabien Josse, Milan Mrsich and George Whitesides, "On-line detection of Non-Specific Adsorption at Artificial Surfaces", Analytical Chemistry, Vol. 69, pp. 3321-3328, 1997

Ashok Menon, Rongnong Zhou, and Fabien Josse, "Polymer-coated Quartz Crystal Resonators for Multi-Information Sensing", Electronics Letters, Vol. 33, No.4, pp.287-289,1997.

Fabien Josse, Youbok Lee, Stephen J. Martin and Richard W. Cernosek, "Analysis of the Radial Dependence of Mass Sensitivity for Modified-Electrode Quartz Crystal Resonators", Analytical Chemistry, Vol. 70, pp. 237-247, 1998.

Ashok Menon, Rongnong Zhou, and Fabien Josse, "Coated-Quartz Crystal Resonator (QCR) Sensors for On-Line Detection of Organic Contaminants in Water", IEEE Trans. on Ultrasonics, Ferroel. and Freq. Control, Vol. 45, No.5, pp. 1416-1426, 1998.

Florian Bender, Reiner Dahint, Fabien Josse, Antonio J. Ricco and Stephen J. Martin, "Characteristics of Acoustic Plates Modes in Rotated Y-cuts of Quartz Utilized for Biosensing Applications", Analytical Chemistry, Vol. 71, No.22, pp. 5064-5068, 1999.

Florian Bender, Reiner Dahint, and Fabien Josse, "Acoustic Wave-Based Sensors Using Mode Conversion in Periodic Gratings", in IEEE Trans. on Ultrasonics, Ferroel. and Freq. Control, Vol. 46, No. 6, pp. 1497-1503, 1999.

Rongnong Zhou, Fabien Josse, Richard Cernosek, Antonio J. Ricco and Steve Casalnuovo, "SH-SAW Sensor Platform for Chemical Detection in Aqueous Solutions", Electrochemical Society, Ed. By M. Butler, N Yamazoe and P. Vanysek, PV 99-23, pp.326-331, 1999.

Florian Bender, Reiner Dahint, Fabien Josse, Antonio J. Ricco and Stephen J. Martin, "Liquid Sensing with Acoustic Plate Modes on Rotated Quartz Substrates", Electrochemical Society, Ed. By M. Butler, N Yamazoe and P. Vanysek, PV 99-23, pp.361-365, 1999.

Florian Bender, Richard W. Cernosek and Fabien Josse, "Love-Wave Biosensors Using Cross-Linked Polymer Waveguides on LiTaO₃ Substrates", Electronics Letters, Vol. 36, No.19, pp. 1-2, 2000.

Rupa Patel, Rongnong Zhou, Kristofer Zinszer, Fabien Josse and Richard Cernosek, "Real-Time Detection of Organic Compounds in Liquids Environments Using Polymer-Coated Thickness Shear Mode Quartz Resonators", Analytical Chemistry, Vol. 72, pp. 4888-4898, 2000.

Fabien Josse, Florian Bender and Richard W. Cernosek, "Guided Shear Horizontal Surface Acoustic Wave Sensors for Chemical and Biochemical Detection in Liquids", Analytical Chemistry, Vol. 73, pp. 5937-5944, 2001.

Electra Gizeli, Florian Bender, A. Rasmusson, Fabien Josse and Richard Cernosek, "Sensitivity of the Acoustic Waveguide Biosensor to Protein Binding as a Function of the Waveguide Properties", Biosensors and Bioelectronics, Vol. 18, No. 11, pp. 1399-1499, 2003.

Jeanne Hossenlopp, Lizhong Jiang, Richard W. Cernosek and Fabien Josse, "Characterization of Epoxy Resin (SU-8) Using Thickness-Shear Mode (TSM) Resonators Under Various Conditions", J. Polymer Sciences, Part B: Polymer Physics, Vol. 42, No. 12, pp. 2373-2384 (2004).

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"Damping and mass sensitivity of laterally vibrating resonant microcantilevers in viscous liquid media", 2011 IEEE International Frequency Control Symposium, San Francisco, California, USA, 1-5 May 2011.

"Influence of ambient parameters on the response of polymer-coated SH-surface acoustic wave sensors to aromatic analytes in liquid-phase detection", Proc. 2011 IEEE International Frequency Control Symposium, San Francisco, California, USA, 1-5 May 2011.

"Thermally actuated silicon tuning fork resonators for sensing applications in air", IEEE MEMS 2012 Conference, January 29 – February 2, 2012, Paris, France

"Resonant Characteristics of Rectangular Microcantilevers Vibrating Torsionally in Viscous Liquid Media," IEEE International Frequency Control Symposium, Baltimore, MD, May 21-24, 2012.

"Detection of IgG using Cantilever-Type Resonant Microsensors Vibrating in In-Plane Flexural Mode," IEEE Sensors 2012 Conference, Taipei, Taiwan, October 28-31, 2012.

"Quantification of Benzene in Groundwater Using SH-Surface Acoustic Wave Sensors", IMCS 2012 - The 14th International Meeting on Chemical Sensors, Nuremberg, Germany, May 20-23, 2012.

"Resonant characteristics of rectangular hammerhead microcantilevers vibrating laterally in viscous liquid media", 2013 IEEE International Frequency Control Symposium, (Joint IEEE UFFC, EFTF and PFM Symp.) Prague, Czech Republic, 22-25 July 2013

"Cantilever-based resonant gas sensors with integrated recesses for localized sensing layer deposition," IEEE Sensors Conference, Baltimore, USA, November 3-6, 2013

"Effect of design parameters on the rotational response of a novel disk resonator for liquid-phase sensing: Analytical results," IEEE Sensors Conference, Baltimore, USA, November 3-6, 2013

"Design of SH-Surface Acoustic Wave Sensors for Detection of ppb Concentrations of BTEX in Water", 2013 IEEE International Frequency Control Symposium, (Joint IEEE UFFC, EFTF and PFM Symp.), Prague, Czech Republic, 22-25 July 2013

“Analysis of the Detection of Organophosphate Pesticides in Aqueous Solutions Using Polymer-Coated SH-SAW Sensor Arrays”, 2013 IEEE International Frequency Control Symposium, (Joint IEEE UFFC, EFTF and PFM Symp.), Prague, Czech Republic, 22-25 July 2013

“Sensor Coatings Based on Polymer/Plasticizer Mixtures for Highly Sensitive and Selective Detection of Benzene in Water”, Proc. IMCS 2014 - The 15th International Meeting on Chemical Sensors, (March 16–19), Buenos Aires, Argentina

“Design of SH-Surface Acoustic Wave Sensors for Detection of ppb Concentrations of BTEX in Water”, Proc. IMCS 2014 - The 15th International Meeting on Chemical Sensors (March 16–19), Buenos Aires, Argentina

“Preliminary Testing Results of Sensor for Speciating Benzene, Toluene, and Ethylbenzene/Xylenes in Groundwater”, presented at the National Environmental Monitoring Conference NEMC 2015 (July 13–17), Chicago, IL

“Design of Sensor Coatings with High Sensitivity to Benzene and Long-term Stability for Groundwater Monitoring Applications”, presented at the 4th International Symposium on Sensor Science (I3S) 2015 (July 13–15), Basel, Switzerland.

“Polymer-Plasticizer Coatings for Shear Horizontal-Surface Acoustic Wave Sensors for Long-Term Monitoring of BTEX Analytes in Liquid-Phase”, presented at the 2016 IEEE IFCS, New Orleans, LA (May 9–12, 2016).

“Sensor-Based Estimation of BTEX Concentrations in Water Samples Using Recursive Least Squares and Kalman Filter Techniques”, Presented at the IEEE Sensors 2016, Orlando, FL (Oct 30–Nov 2, 2016)

“Design criteria for plasticized polymer coatings for long-term acoustic-wave sensor measurements in aqueous phase”, 2017 Joint Conference of the European Frequency and Time Forum and IEEE International Frequency Control Symposium (EFTF/IFC), Besancon, France (July 10 -13, 2017).

“Detection and Quantification of Multi-Analyte Mixtures Using a Single Sensor and Multi-Stage Data-Weighted RLSE,” 2018 IEEE International Frequency Control Symposium Lake Tahoe, CA, May 21-24, 2018.

“Design of an SH-SAW Sensor Array with High Sensitivity and Partial Selectivity Using Polymer-Plasticizer Coatings,” 2018 International Meeting on Chemical Sensors (IMCS)

Vienna, Austria, 2018

“High-Sensitivity Magnetic Sensors Based on GMI Microwire-SAW IDT Design” 2019 IEEE International Frequency Control Symposium Orlando, FL, April 14-18, 2019.

“Design of Chemical Sensor Coatings Based on Blends of a Single Polymer-Plasticizer Pair for Detection of Single or Multi-Analyte Aqueous Solutions”, 2019 Transducers, Berlin, Germany, June 23–27, 2019.

E. Seminars and Speeches Given:

Has given numerous Seminars and Lectures (1984-Present):

Various Universities: (*Maryland-College Park, Wisconsin-Madison, Wisconsin-Milwaukee, Arkansas-Fayetteville, Central Florida, South Florida, Auburn University, U. of Maine, University of Massachusetts-Amherst, Georgia Institute of Technology, University of Heidelberg, ETH Zurich, University of Bordeaux, IMTEK Freiburg, ...etc.*)

Industry and Government Labs: (*Motorola, Eaton Corp., Allen-Bradley/Rockwell International, Kimberly-Clark, Science Applications International Corporation (SAIC), etc*), at *Sandia National Laboratories, Army Research Lab. (ARL), Naval Research Lab. (NRL), NATO Advanced Study Institute on Smart Sensors and MEMS in Portugal, etc.*

Universities Overseas: *France, Benin, Germany, England, Switzerland.*

F. Technical Reports:

Fabien Josse, "Study of Reflected Bulk Waves for Microwave Acoustic and Acoustoelectric Device Application", National Science Foundation Research Final Report NSF -ECS-8307229, May 1986.

Dean C. Jeutter and Fabien Josse, "Cochlear Prosthesis Radio Link", Phase I Final Report, Symbion, Inc., Salt Lake City, Utah, July 1986.

Fabien Josse, "Improved Single-Phase Unidirectional Transducer (SPUDT) Synthesis Procedure", Tech. Report, RF Monolithics, Inc., Dallas, TX, August 1986.

Dean C. Jeutter and Fabien Josse, "Cochlear Prosthesis Radio Link Project", Phase II Final Report, Symbion, Inc., Salt Lake City, Utah. March, 1988.

Fabien Josse, Zack A. Shana, Abd A. Arkadan and Wei Huang, "Electrostatic Antiscaling Device", Reports 1 and 2, August 1991 - Report 3. December 1991, Fleck Controls Inc., Milwaukee, Wisconsin.

Fabien Josse, Zack A. Shana, Abd A. Arkadan and Wei Huang, "Study of Electrostatic Antiscaling Devices - Effect of Electric Fields on Water Particles" Fleck Controls, Inc. Report IV, May 1992.

Fabien Josse, "Study of Acoustic Waves for Liquid Chemical Microsensor Application", National Science Foundation (NSF), Final Report NSF-ECS-8811258, June 1992.

Fabien Josse, "An On-Line Microbiological Analyzer", Biotronics Technologies Inc./NASA, Interim Report, March 1993.

Fabien Josse, "An On-Line Microbiological Analyzer", Biotronics Technologies Inc./NASA, Final Report, 1994.

Fabien Josse and Rongnong Zhou, "Determination of Hexavalent Chromium in Liquid Environments Using Electrochemical Acoustic Wave Device", Biode Inc., Phase I Final Report, 1999, and Phase II Final Report, 2001.

G. Thesis and Dissertation:

Fabien Josse, "Design, Fabrication and Testing of Surface Skimming Bulk Wave Devices", Master's Thesis, University of Maine - Orono, 1979.

Fabien Josse, "Analysis of the Generation, Interaction and Detection of Surface and Bulk Acoustic Waves on Piezoelectric Substrates", Doctoral Dissertation, University of Maine -Orono, 1982, University Microfilms International, Ann Arbor, Michigan -1982.

PATENTS:

Cochlear Implant Employing Frequency - Division Multiplexing and Transcutaneous Transmission Coil. U.S. Patent No. 5,069,210; Issued date: Dec. 3, 1991 (Dean Jeutter and Fabien Josse)

Quartz Sensors Using the Acoustoelectric Effect - U.S. Patent No. 5,455,475 Issued date: Oct. 3, 1995 (Fabien Josse)

An Acoustic Plate Mode Sensor for Immuno-Chemical Reactions - German Patent No. DE 43 23 045 C1 - Int. Cl.: G 01 N 29/02 (Fabien Josse and Michael Grunze and Reiner Dahint)

Improved Piezoelectric Resonator Chemical Sensing Device. U.S. Patent No. 5,852,229; Issued date: Dec. 22, 1998 (Fabien Josse and Dennis Everhart)

Pre-Concentration and Guided SH-SAW Sensor-Based Detection and Monitoring of BTEX Hydrocarbons Contaminants in Aqueous Environments, Invention Disclosure

(Fabien Josse, Florian Bender, Antonio J. Ricco, Rachel Mohler, Urmas Kelmser, Karen Synowiec), U.S. Patent No.: US 9,244,051 B2, Date of Pat.: Jan. 26, 2016

Shear Horizontal-Surface Acoustic Wave System and Method for Measurement and Speciation of Hydrocarbons in Groundwater, International Application No. PCT/US16/37221 Filed on 06/13/2016 (Pending patent)

UNIVERSITY ACTIVITIES:

A. Committee Assignments

- 2006 - University Ph.D. Composition Subcommittee
- 2000-2004 - Member of the Marquette University Board of Graduate Studies (UBGS)
- 2000-03, 2004-07, 2009- Present - Member of the Promotion and Tenure Committee of the College of Engineering
- 1992-2000 - Member of the College of Engineering Committee on Basic Sciences in Engineering
- 1987-Present - Member Graduate Committee, Department of Electrical and Computer Engineering, Marquette University.
- 1994-95, 2003-Pres. - Member of the Department of Electrical and Computer Engineering Goals Committee, Marquette University.
- 1982-1989 - Member of the Undergraduate Committee, Department of Electrical and Computer Engineering, Marquette University.
- 1984-1988 - Member of Computer Science and Engineering Area Committee, Department of Electrical and Computer Engineering, Marquette University.
- 1984-1988 - Member of the Signal Processing, Solid State Devices, Communication Areas, Department of Electrical and Computer Engineering, Marquette University.

B. Graduate Students Directed

- Directed 30 former M.S. and 22 Ph.D. degree Students.

- Served on numerous (over 60) committees for former M.S. and Ph.D. candidates in the Department of Electrical and Computer Engineering, Marquette University, and Ph.D. candidates in other various Universities.
- Presently directing the research of 3 Ph.D. Graduate Students at Marquette University.