

## Curriculum Vitae

(Last updated: October 23, 2023)

### **Xudong (Sherman) Fan, Ph.D.**

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### **EDUCATION**

- 2000 Ph.D., Physics/Optics, Physics Department, Oregon Center for Optics, Univ. of Oregon
- 1994 M.S., Peking University, Beijing, P. R. China
- 1991 B.S., Peking University, Beijing, P. R. China

### **EMPLOYMENT**

#### **Primary Academic/Industrial Positions**

- 9/2014 – present Richard A. Auhl Professor, Department of Biomedical Engineering  
College of Engineering & School of Medicine  
University of Michigan, Ann Arbor, MI
- 1/2010 – 9/2014 Associate Professor, Department of Biomedical Engineering  
University of Michigan, Ann Arbor, MI
- 1/2010 – 9/2014 Associate Professor, Department of Biomedical Engineering  
University of Michigan, Ann Arbor, MI
- 9/2009 – 12/2009 Associate Professor (early tenure and promotion), Department of Biological  
Engineering  
University of Missouri, Columbia, MO
- 9/2004 – 8/2009 Assistant Professor, Department of Biological Engineering  
University of Missouri, Columbia, MO
- 10/2000 – 8/2004 Senior Research Scientist, Project Leader  
Corporate Research Laboratory, 3M Corporation, Austin, TX

### **Other Academic Positions**

5/2017 – 08/2022	Director of NIH Microfluidics in Biomedical Sciences Training Program, University of Michigan
10/2015 – present	Thrust leader of “Environmental Sensors and Subsystems”, Wireless Integrated Microsensing and Systems (WIMS <sup>2</sup> ) at the University of Michigan
5/2017 – present	Associate Director of the Max Harry Weil Institute for Critical Care Research and Innovation at the University of Michigan
1/2018 – 1/2020	Member of Lurie Nanofabrication Facilities Council, University of Michigan
10/2016 – 10/2017	ABET Coordinator for Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI (ABET: Accreditation Board for Engineering and Technology)
1/2015 – 5/2017	Associate Chair for Undergraduate Education, Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI
1/2015 – 5/2017	Undergraduate Curriculum Committee Chair, Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI
1/2013 – 5/2017	Member of Michigan Center for Integrative Research in Critical Care (MICIRCC) at the University of Michigan
1/2010 – 10/2015	Member of Wireless Integrated Microsensing and Systems (WIMS <sup>2</sup> ) at the University of Michigan
2005 – 12/2009	Member of the International Center for Nano/Micro Systems and Nanotechnology, University of Missouri, Columbia, MO
2005 – 12/2009	Adjunct Professor, Department of Physics University of Missouri, Columbia, MO
9/2004 – 12/2009	Member of Christopher S. Bond Life Sciences Center University of Missouri, Columbia, MO

### **HONORS AND AWARDS**

Richard A. Auhl Professor of Engineering (2022)

University of Michigan College of Engineering Wise-Najafi Prize for Engineering Excellence in the Miniature World (2022)

Nominated for the College of Engineering Rexford E. Hall Innovation Excellence Award for 2019 (I declined it since I received one in 2018)

University of Michigan, College of Engineering Rexford E. Hall Innovation Excellence Award (2018)

University of Michigan, College of Engineering Monroe-Brown Foundation Research Excellence Award (2017)

Fellow of SPIE (2017)

Fellow of Royal Society of Chemistry (2016)

Early promotion to Professor (2014)

Departmental Award for Outstanding Accomplishment (2014 and 2015)  
Fellow of Optical Society of America (2014)  
#1 "Most Cited Analytica Chimica Acta Article since 2008" (2013)  
Third Place" in "The Most Popular Stories of 2012" by Biophotonics (2013)  
1<sup>st</sup> Prize of "Sensors Best Paper Award 2012" (2012)  
Early tenure and promotion (2009)  
MU Sigma Xi Excellence in Graduate Research Mentoring Award (2009)  
IEEE Sensors Journal Best Paper Award (2008)  
Wallace H. Coulter Early Career Award Phase II (2008)  
NSF – CAREER Award (2008)  
Wallace H. Coulter Early Career Award Phase I (2006)  
3M Non-Tenured Faculty Award, 3M Foundation (2006)  
America Chemical Society Petroleum Research Award for Junior Faculty (2006)  
Non-Tenured Faculty Award, 3M Foundation (2005)  
Non-Tenured Faculty Award, 3M Foundation (2004)  
Circle of Technical Excellence, 3M Corporation (2004)  
3M DISCOVERY Research Grant Award, 3M Corporation (2003)  
Circle of Technical Excellence, 3M Corporation (2002)  
3M GENESIS Research Grant Award, 3M Corporation (2001)  
Travel Grants Award, Division of Laser Science of the American Physical Society (2000)  
New Focus Student Travel Grants Award (1999)  
Travel Grants Award, Division of Laser Science of the American Physical Society (1999)  
Graduate Research Award, Graduate School, University of Oregon (1999)  
Travel Grants Award, Division of Laser Science of the American Physical Society (1998)  
New Focus Student Travel Grants Award (1997)  
Travel Grants Award, Division of Laser Science of the American Physical Society (1997)  
Graduate Research Award, Graduate School, University of Oregon (1997)  
Highest Honor with the full scholarship award from Peking University (1992 – 1993)  
Excellence Award for the academic achievement from Peking University (1992)  
Excellence Award for the academic achievement from Peking University (1988)

### **TEACHING EXPERIENCE**

BME 561:                   Biological Micro- and Nanotechnology  
BME 450:                   Biomedical Design  
                                  (Winter/2013)

BME 599:	Advanced Optical and Nano Bio/Chemical Sensors (Winter/2012, Winter/2014, Winter 2016)
BME 458:	Bioinstrumentation (Fall/2010, Winter/2011, Fall/2011, Fall/2012, Fall/2013, Fall/2014, Fall/2015, Fall/2018)
BE 4001/7001:	Photonics and nanotechnologies in optical biosensors (Winter/2005)
BE 4670/7670:	Photonics and nanotechnologies in optical biosensors (Winter/2005, Fall/2006, Fall/2007, and Fall/2008)
BE 8087:	Seminar in Biological Engineering (Fall/2005)
BE 8270:	Principles and Applications of Fluorescence (Winter/2006, Winter/2007, and Winter/2008)
BE 4280:	Survey of Bioengineering Techniques (team taught, organizer, Fall/2008)

### ENTREPRENEURIAL EXPERIENCE

Co-founder of a number of start-up companies.

### PAST AND CURRENT SUPPORT

#### 1. PRESENT FUNDING

NIH, R01HL171517, Point-of-care micro-gas chromatography device for diagnosis and monitoring of acute respiratory distress syndrome using exhaled breath signatures Role: PI Total costs: \$4,902,534.00 (expected to be funded)	01/01/2024 – 12/31/2027
LEMX Health Technology Co., LTM Laser Emission Microscope Phase II Role: PI Total costs: \$300,000	12/15/2022 – 08/14/2024
DoD, MURI Understanding and Predicting Cognitive Fatigue across Multiple Timescales, Distinct Aspects of Cognition, and Different Individuals with Multiscale Whole Cortex Models Role: Co-I. PI: Daniel Forger Total costs: \$869,341 (my portion)	09/12/2022 – 09/11/2025
NIH, SBIR 2R44DA052941-02 "Rapid and non-invasive device for drug detection through sweat" Role: subcontract PI. Primary contractor: Arborsense Inc. Total costs: \$1,757,486; University of Michigan portion: \$534,676	08/01/2022 – 07/31/2024
NSF, CBET-2225568	11/01/2022 – 10/31/2026

“RECODE: Non-invasive cell patterning and monitoring to generate data-guided computational models that inform synthetic gene circuit-guided cartilage development”

Role: Co-PI. PI: Rhima Coleman

Total costs: \$1,500,000

NIH, U01TR004066

08/10/2022 – 05/31/2027

“High performance wearable body odor sensor arrays for disease detection and monitoring”

Role: PI

Total costs: \$5,688,127

ChromX Health

11/01/2021 – 12/31/2023

“Portable GC with argon discharge photoionization detector for breath analysis”

Role: PI

Total costs: \$359,195

NIH, U18TR003812

12/21/2020 – 11/30/2023

“COVID-19 detection through scent analysis with a compact GC device”

The goal of the project is to develop a micro-GC devices for rapid and in-situ breath analysis to detect COVID-19

Role: PI

Total costs: \$2,000,000

NIOSH, 1 R01 OH011082-01A1

09/01/2018 – 08/31/2023

Novel gas chromatography for rapid, in situ workplace hazardous VOC/VIC analysis

Role: PI

Total costs: \$1,655,020

Blu Biotech, Inc.

06/01/2020 – 06/30/2024

Micro-gas chromatography device for breath analysis

Role: PI

Total costs: \$1,049,893

NIH, SBIR, R44AA026119

10/01/2020 – 06/30/2023

“Nanoelectronic Vapor Sensors for Transdermal Alcohol Monitoring”

Role: PI for subcontract. Primary contract PI: Girish Kulkarni at Arborsense Inc.

## 2. PAST FUNDING

Merck

01/01/2021 – 12/31/2022

“Microfluidic serial dilution device for 96-well plates”

Role: PI

Total costs: \$69,557

NSF, ECCS-2029484

05/01/2020 – 04/30/2022

“RAPID: Optofluidic sensor array for rapid and sensitive detection of COVID-19 antibodies

The goal of the proposed project is to develop a laser emission based detection of COVID-19 antibodies.

Role: PI

Total costs: \$150,000

NASA 10/01/2019 – 03/31/2022  
MAss Spectrometer for Planetary EXploration-ORganic Composition Analyzer (MASPEX-ORCA) for Europa Lander  
Role: Co-PI for the sub-contract from Southwest Research Institute  
Total costs for the sub-contract: \$691,656 (my portion: \$338,608)

IARPA, FA8650-19-C-9101 06/04/2019 – 08/31/2020  
Integrated ultra-compact low power multi-dimensional gas chromatography device (Screening Identification Track)  
Role: PI  
Total costs: \$1,695,544

IARPA 08/01/2019 – 03/30/2021  
ACHILLES (Autonomous Chemical Intelligence for Long Endurance Mission)  
Role: PI for the sub-contract from SRI  
Total costs for the sub-contract: \$439,173

Beijing Institute for Collaborative Innovation 02/15/2019 – 02/14/2021  
Laser emission microscope  
Role: PI  
Total costs: \$233,570

Beijing Institute for Collaborative Innovation 04/01/2020 – 06/30/2021  
Multiplexed label-free sensors for single cell secretomes monitoring  
The goal of the project is to develop label-free sensors to monitor cell secretion  
Role: PI  
Total costs: \$75,000

Beijing Institute for Collaborative Innovation 10/01/2019 – 06/30/2021  
Breath analysis using high-performance portable gas chromatography  
Role: PI  
Total costs: \$433,493

NIH, 1R21HL139156 12/15/2017 – 11/30/2019  
Rapid breath analysis for acute respiratory distress syndrome diagnostics  
Role: PI  
Total costs: \$411,601

IARPA, 2018-18032000001 04/16/2018 – 04/15/2019  
Rapid, Low Power Voltage Programmed Micro-Gas Chromatography  
Role: PI  
Total costs: \$300,000

NIH SBIR Phase II, 2R44AA026119-02 08/10/2017 – 07/31/2019  
Wearable alcohol sensors  
Role: PI for sub-award (Sponsor: Arborsense. PI: Girish Kulkarni)  
Total costs: \$1,500,000 (Sub-award total costs: \$402,177)

NSF ECCS-1607250 05/01/2016 – 04/30/2019  
Development of scanning optofluidic cell lasers for highly sensitive cellular and tissue analysis

Role: PI

Total costs: \$454,313

NSF DBI-1451127 02/15/2015 – 02/14/2019

Optofluidic laser array based ultrasensitive ELISA instrument with a large dynamic range

Role: PI.

Total costs: \$380,724

NSF IIP-1660015 04/15/2017 – 04/14/2019

SBIR Phase II: Wearable Nanoelectronic Vapor Sensors for Transdermal Alcohol Monitoring

Role: PI for sub-award (Sponsor: Arborsense. PI: Girish Kulkarni)

Total costs: \$580,822 (declined)

IARPA, FA8650-17-C-9106 01/31/2017 – 10/31/2018

Low power high capacity 3-dimensional micro-gas chromatography

Role: PI

Total costs: \$578,786

NIH Center for Accelerated Innovations 08/01/2017 – 07/31/2018

Micro gas chromatography and breathomics for acute point-of-care diagnostics in acute lung injury

Role: PI

Total costs: \$116,250

Environment Protection Agency (EPA) R835644 08/01/2014 – 07/31/2017

Field device to monitor indoor chemicals

Role: PI

Total costs: \$900,000

NSF ECCS-1405870 07/01/2014 – 06/30/2017

High-Frequency Graphene Nanoelectronic Vapor Sensors for Micro-Gas Chromatography

Role: Shared-PI (\$180,000) (PI: Zhaohui Zhong)

Total costs: \$360,000

NSF ECCS-1303499 06/01/2013 – 05/31/2017

Plasmonically enhanced optical ring resonators for label-free single molecule detection

Role: PI

Total costs: \$200,000 (award cut from \$400,000 by NSF due to the federal budget cut)

NSF CMMI-1265164 06/01/2013 – 05/31/2017

Sensitive dual mode microfluidic optomechanical analysis of biomolecules

Role: PI

Total costs: \$370,000

NSF IIP-1548317 01/01/2016 – 12/31/2016

SBIR Phase I: Wearable Nanoelectronic Vapor Sensors for Transdermal Alcohol Monitoring

Role: PI for sub-award (Sponsor: Arborsense. PI: Girish Kulkarni)

Total costs: \$150,000 (sub-award: \$29,599)

NIH NIBIB-1R21EB016783 01/01/2014 – 12/31/2016

Protein interaction study In-vitro and in live cells with optofluidic lasers

Role: PI





Role: Co-PI (shared the same credit as the PI (Prof. Jack Schultz))  
Total costs: \$300,000

NSF ECCS-0853399 07/01/2009 – 06/30/2012  
GOALI: Integrated versatile opto-fluidic ring resonator laser systems with ultralow threshold  
Role: PI  
Total costs: \$311,000

Wallace H. Coulter Foundation (Phase II) 08/01/2008 – 07/31/2010  
Early career award: Prototyping Lab-on-a-Chip Based on Liquid Core Optical Ring Resonators for  
Detection of Breast Cancer Biomarkers  
Role: PI  
Total costs: \$260,000

NSF ECCS-0729903 11/01/2007 – 10/31/2010  
Development of highly sensitive ultrafast micro gas chromatography for explosive detection  
Role: PI  
Total costs: \$406,000

DoD W15QKN-06-R-0742 02/01/2007 - 01/31/2012  
Investigation of Advanced Materials and Novel Processing Technology for Potential Use with  
Department of Defense Weapon Systems  
Role: Co-PI (2% shared credits)  
Total costs: \$1,210,000

Wallace H. Coulter Foundation 08/01/2006 – 10/31/2008  
Early career award: Prototyping Lab-on-a-Chip Based on Liquid Core Optical Ring Resonators for  
Detection of Breast Cancer Biomarkers  
Role: PI  
Total costs: \$238,000

NIH 5K25EB006011 09/18/2006 – 08/31/2008  
Mentored Quantitative Research Career Development Award: Highly Sensitive Biosensor Platform  
Using Optical Microring Resonators  
Role: Primary mentor of the mentee, Dr. Ian M. White  
Total costs: \$447,953

American Chemical Society Petroleum Research Fund 43879-G 10 02/01/2006 – 07/31/2008  
Single Molecule Raman Detection with a Composite Microresonator and Metal Nanoparticle System  
Role: PI  
Total costs: \$35,000 (direct cost, no overhead)

Missouri Beef Industry Council 11/01/2007 – 10/31/2008  
Rapid Simultaneous Detection of Escherichia coli O157:H7 and Salmonella in Ground Beef by  
Quantum Dot Labeled Antibodies and Immunomagnetic Separation  
Role: Co-PI (shared the same credit as the PI, 50%)  
Total costs: \$51,792

NIH 5R21EB5840-3 09/22/2006 – 08/31/2009  
Atomic Force-FRET Microscope Using Quantum Dot for Cell Mechanobiology  
Role: Co-PI (8% shared credit)

Total costs: \$561,197

NSF ECCS-0608745 07/01/2006 – 03/31/2008  
 Functionalized Nanoscale Materials for Sensor Architectures  
 Role: Co-PI (shared the same credit as the PI, 45%)  
 Total costs: \$102,392

DARPA 07/01/2007 – 09/30/2007  
 Micro-gas-chromatography based on liquid core optical ring resonator  
 Role: PI  
 Total costs: \$12,000

3M Non-tenured Faculty Award 01/01/2005 – 12/31/2007  
 Microsphere-based sensor development  
 Role: PI  
 Total costs: \$67,500 (direct cost, no overhead)

MU Research Council 02/01/2006 – 07/31/2006  
 Multiplexed liquid core optical ring resonator sensors with sub-nanoliter detection volume  
 Role: PI  
 Total cost: \$7,500 (direct cost, no overhead)

NSF 06/01/2006  
 Major Research Instruments – VPSEM  
 Role: Co-PI (2% shared credits)  
 Total costs: \$548,000

MU College of Engineering 04/01/2006 – 03/31/2007  
 Equipment Proposal for an Interdisciplinary Modular Undergraduate Laboratory  
 Role: PI  
 Total costs: \$18,000 (direct cost, no overhead)

MU Bioprocessing and Biosensing Center 04/01/2006 – 09/30/2006  
 Development of fluorescent particle embedded elastic substrates for cell mechanics studies  
 Role: PI  
 Total costs: \$11,000 (direct cost, no overhead)

MU Bioprocessing and Biosensing Center 05/01/2006 – 10/31/2006  
 Transcytosis of Functionalized Quantum Dots Across the Blood Brain Barrier  
 Role: Co-PI (10% shared credits)  
 Total costs: \$10,000 (direct cost, no overhead)

UM Research Board 01/01/2005 – 12/31/2005  
 Novel Raman Bio/Chemical Sensor  
 Role: PI  
 Total costs: \$27,742 (direct cost, no overhead)

MU College of Engineering 04/01/2005 – 09/30/2005  
 Development of Stable Microsphere Resonator Sensors  
 Role: PI  
 Total cost: \$23,000 (direct cost, no overhead)

MU Bioprocessing and Biosensing Center 03/01/2005 – 06/30/2005

Fluorescent Semiconductor Quantum Dot Fabrication

Role: PI

Total costs: \$10,000 (direct cost, no overhead)

MU Bioprocessing and Biosensing Center

03/01/2005 – 12/31/2005

Threshold detection of circulating melanoma cells in human blood

Role: Co-PI (15% shared credits)

Total costs: \$11,300 (direct cost, no overhead)

## PROFESSIONAL SERVICES

### Current

Inaugural Chair of Gordon Research Conference - Lasers in Micro, Nano and Bio Systems

6/2016 – present

Co-organizer of University of Michigan Precision Health Working Group

5/2017 – present

NIH Microfluidics Training Program Director

5/2017 – present

Associate Director of Max Harry Weil Institute for Critical Care Research and Innovation

5/2017 – present

Thrust leader of “Environmental Sensors and Subsystems”, Wireless Integrated Microsensing and Systems (WIMS<sup>2</sup>) at the University of Michigan

10/2015 – present

International Editorial Advisory Board for Advanced Materials Technologies (Wiley)

11/2015 – 11/2020

Editorial Board for Lab on a Chip (Royal Society of Chemistry)

01/2015 – 2021

Advisory Board for Lab on a Chip (Royal Society of Chemistry)

2021 - present

### Past

BME Department ABET Coordinator

10/2016 – 10/2017

Guest Editor for IEEE Journal of Selected Topics in Quantum Electronics

2016

Guest Editor for IEEE Journal of Selected Topics in Quantum Electronics

2015

Associate Chair for Undergraduate Education at BME Department

01/2015 – 05/2017

Associate Editor of Optics Express

2008 – 2014

Responsible for biophotonics, optical biological and chemical sensing, and optofluidics

Committee Member:

Dutch Technology Foundation STW

2013, 2014

Skolkovo Foundation, Russia

2012

NIH IMST

2013 (twice), 2014, 2015, 2016

NIH 2015-10 ZRG1 EBIT

2015

NIH ZRG1 BST-B(90)

2012, 2013, 2014

NIH CSR review panel

2012, 2013

NIH NCI review panel	2012
NIH NIAID review panel	2011
MacArthur Foundation	2010
Research Grants Council (RGC) of Hong Kong	2010
DoD SBIR/STTR	2009
NSF review panel	2007, 2008, 2009, 2011, 2012, 2013, 2015, 2016 (total=15 times)
Singapore A*Star	2009, 2010, 2011, 2012, 2015, 2017
UM Research Board Review Panel	2007
Army Research Office Proposal Review Panel	2006
U.S. Civilian Research and Development Foundation Proposal Review Panel	2006
USDA Multistate Research Coordinating Committee/Information Exchange Group, NCDCC201, "Nanotechnology and Biosensors"	2004 – 2007
MU Nanoscience Taskforce	2005
Biological Engineering Department Faculty Search Committee	2006 – 2007
Electrical and Computer Engineering Faculty Search Committee	2005 – 2006

## Organizer and Session Chair:

European Optical Society Meeting	2017
Pittcon	2016, 2017
Optofluidics Conference Steering Committee	2013, 2014, 2015, 2017
OSA (Optical Society of America) CLEO (Biophotonics and Optofluidics)	2011, 2012, 2013, 2014, 2015, 2017
MRS (Materials Research Society) MRS Annual Meeting, Materials for Optical Sensors in Biomedical Applications	2007-2014
SPIE Defense, Security, and Sensing Symposium, "Photonic Microstructured Sensors" (organizer and chair, 2008-2010)	2008-2011
SPIE (The International Society for Optical Engineering) Optics East, Sensors for Harsh Environments	2006 - 2007
SPIE (The International Society for Optical Engineering) Defense and Security Symposium, Micro (MEMS) and Nanotechnologies for Space Applications	2006 - 2008
SPIE (The International Society for Optical Engineering) Photonics West, Integrated Optics: Devices, Materials, and Technologies	2007-present
SPIE (The International Society for Optical Engineering) Photonics West, Frontiers in Biological Detection: From Nanosensors to Systems	2013-present

SPIE (The International Society for Optical Engineering) International Conference on Optical Instruments and Technology,	2011, 2012, 2013, 2014
The 3rd Annual Missouri Nanotechnology Alliance Conference	2006
IEEE Photonics Conference	2014

## Ad-hoc reviewer for journals:

Science  
 Nature Communications  
 Nature Photonics  
 Nature Nanotechnology  
 Nature Methods  
 PNAS  
 Chinese Optics Letters  
 Journal of Nanophotonics  
 Review of Scientific Instruments  
 Journal of Optical Society of America  
 Sensing and Instrumentation for Food Quality and Safety  
 Microfluidics and Nanofluidics  
 Chemical Reviews  
 Journal of Nanophotonics  
 Optics Express  
 Biophysical Journal  
 Optics Letters  
 Sensors and Actuators B  
 IEEE Sensors Journal  
 Physical Review A  
 Physical Review B  
 Applied Physics Letters  
 Biosensors and Bioelectronics  
 Analytica Chimica Acta  
 IEEE Photonics Technology Letters  
 BMC Biotechnology  
 Analytical and Biochemistry  
 ACS Nano  
 Journal of Exposure Science and Environmental Epidemiology  
 Cytometry  
 Chemical Science  
 Nano Letters

**PROFESSIONAL AFFILIATIONS**

Fellow of the International Society of Optical Engineering (SPIE)  
 Fellow of Royal Society of Chemistry (RSC)  
 Fellow of Optical Society of America (OSA)  
 Member of Institute of Electrical and Electronics Engineers (IEEE)

Member of American Chemical Society (ACS)

Member of Materials Research Society (MRS)

### LIST OF PUBLICATIONS

**Total citation: 19,220; H-index: 66 (based on Google Scholar 10/23/2023)**

**A. Peer-Reviewed Journal Publications** (\* denotes the corresponding author)

205. Anjali Devi Sivakumar, Ruchi Sharma, Chandrakalavathi Thota, Ding Ding, and Xudong Fan\*, "WASP: Wearable Analytical Skin Probe for Dynamic Monitoring of Transepidermal Water Loss," ACS Sensors (under revision)
204. Xiaoqin Wu, Chunyan Zhu, Yipei Wang\*, and Xudong Fan\*, "Micro/Nano lasers for biomolecular sensing and cellular analysis," Photonic Sensors (under review)
203. Wenzhe Zang, Xiaheng Huang, Ruchi Sharma, and Xudong Fan\*, "Differential Calibration of Contour Plot Using 1D Data in Comprehensive 2D Gas Chromatography," Analytical Chemistry (under review)
201. Yuan Gong, Chaoyang Gong, Xi Yang, Shui-Jing Tang, Qian-Qian Zhang, Yanqiong Wang, Yi-Ling Liu, Yu-Cheng Chen, Gang-Ding Peng, Xudong Fan, Yun-Feng Xiao, and Yun-Jiang Rao, "Submonolayer Biolasers for Ultrasensitive Biomarker Detection," Light: Science & Applications (under revision)
200. Ryan C. Blase\*, Mark J. Libardoni, Christopher R. Glein<sup>1</sup>, Kelly E. Miller, J. Hunter Waite, Maxwell Wei-hao Li, Katsuo Kurabayashi, and Xudong Fan, "Portability of MEMS GC-MS instrumentation: a focus on landed planetary space science mission applications," Journal of Chromatography A (under revision)
199. Wenzhe Zang, Ruchi Sharma, Maxwell Wei-Hao Li, and Xudong Fan\*, "Retention time trajectory matching for target compound peak identification in chromatographic analysis," Sensors **23**, 6029 (2023)
198. Xiaheng Huang<sup>+</sup>, Ruchi Sharma<sup>+</sup>, Anjali Devi Sivakumar, Shuo Yang, and **Xudong Fan\*** (+: equal contribution) "Ultrathin silica integration for enhancing reliability of microfluidic photoionization detectors," Analytical Chemistry **95**, 8496–8504 (2023)
197. Ruchi Sharma<sup>+</sup>, Wenzhe Zang<sup>+</sup>, Ali Tabartehfarahani, Andres Lam, Xiaheng Huang, Anjali Devi Sivakumar, Chandrakalavathi Thota, Shuo Yang, Robert P. Dickson, Michael W. Sjoding, Erin Bisco, Carmen Colmenero Mahmood, Kristen Machado Diaz, Nicholas Sautter, Sardar Ansari, Kevin R. Ward\*, and **Xudong Fan\*** (+: equal contribution), "Portable Breath-Based Volatile Organic Compound Monitoring for the Detection of COVID-19 During the Delta Variant and Its Transition to the Omicron Variant," JAMA Network Open **6**, e230982 (2023)
196. Xiaheng Huang, Maxwell Wei-hao Li, Wenzhe Zang, Xiaolu Huang, Anjali Devi Sivakumar, Ruchi Sharma, and **Xudong Fan\***, "Portable Comprehensive Two Dimensional Micro-Gas Chromatography Using Integrated Flow-Restricted Pneumatic Modulator," Nature Microsystems and Nanoengineering **8**, 115 (2022)
195. Larissa Steigmann<sup>+</sup>, Shogo Maekawa<sup>+</sup>, Frederic Kauffman<sup>+</sup>, Jacob Reiss, Ashley Cornett, James Sugai, Julian Venegas, **Xudong Fan**, Yuying Xie, William V. Giannobile, Rodica Pop-Busui, Isabelle M.A. Lombaert\* (+: equal contribution), "Changes in Salivary Biomarkers

- Associated with Periodontitis and Diabetic Neuropathy in Individuals with Type 1 Diabetes,” *Scientific Reports* **12**, 11284 (2022)
194. Weishu Wu<sup>+</sup>, Xiaotian Tan<sup>+</sup>, Jennifer Zupancic, John S. Schardt, Alec Desai, Matthew D. Smith, Jie Zhang, Maung Kyaw Khaing Oo, Peter M. Tessier<sup>\*</sup>, and **Xudong Fan<sup>\*</sup>** (+: equal contribution), “Rapid and Quantitative In-vitro Evaluation of SARS-CoV-2 Neutralizing Antibodies and Nanobodies,” *Analytical Chemistry* **94**, 4504–4512 (2022)
193. Xuzhou Li, Wei Zhang, Yanxiu Li, Xiaoqin Wu, Mingyang Wang, Xiaotian Tan, Yannis Paulus<sup>\*</sup>, **Xudong Fan<sup>\*</sup>**, and Xueding Wang<sup>\*</sup>, “In vivo tracking of single progenitor cells labeled with nanowire lasers using optical coherence tomography and fluorescence microscopy multi-modality imaging,” *Biomedical Optics Express* **13**, 4706 – 4717 (2022)
192. Ryan C. Blasé<sup>\*</sup>, Mark J. Libardoni, Gregory P. Miller, Kelly E. Miller, Charity M. Phillips-Lander, Christopher Glein, J. Hunter Waite, Abhishek Ghosh, Anandram Venkatasubramanian, Maxwell Wei-hao Li, Andrew Stephens, **Xudong Fan**, and Katsuo Kurabayashi, “MEMS GC column performance for analyzing organics and biological molecules of interest for future landed missions,” *Frontiers in Astronomy and Space Sciences* **9**, 828103 (2022)
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  46. Hongying Zhu, Paul S. Dale, and **Xudong Fan\***, "Optofluidic ring resonator sensor for sensitive label-free detection of breast cancer antigen CA15-3 in human serum," SPIE DSS 2009, Orlando, FL (2009)
  45. Jonathan D. Suter, Daniel J. Howard, Charles W. Caldwell, Huidong Shi, and Xudong Fan\*,

- “Label-free DNA methylation analysis using the optofluidic ring resonator sensor, SPIE DSS 2009, Orlando, FL (2009)
44. John T. Gohring and Xudong Fan\*, “Detection of CD4+ and CD8 + T-Lymphocytes with the Optofluidic Ring Resonator (OFRR) Biosensor,” SPIE DSS 2009, Orlando, FL (2009)
43. Yuze Sun, Jing Liu, Greg Frye-Mason, Aaron Thompson, Shiou-jyh Ja, and **Xudong Fan\***, “Development of optofluidic ring resonator based chemical vapor sensing platform,” SPIE DSS 2009, Orlando, FL (2009)
42. Yuze Sun, Greg Frye-Mason, Aaron Thompson, Shiou-jyh Ja, and **Xudong Fan\***, “Development of optofluidic ring resonator  $\mu$ GC with on-column detection capability,” Pittcon 2009, Chicago IL (2009)
41. Luxin Wang, Chung-Shieh Wu, **Xudong Fan**, Azlin Mustapha\*, Rapid simultaneous detection of *Escherichia coli* O157:H7 and *Salmonella* in ground beef by quantum dot labeled antibodies and immunomagnetic separation, IFT Annual Meeting, Anaheim, CA (2009)
40. Yuze Sun, Siyka I. Shopova, Ian M. White, Hongying Zhu, Greg Frye-Mason, Shiou-jyh Ja, Aaron Thompson, and **Xudong Fan\***, “Rapid chemical vapor sensing and micro gas chromatography detection using optofluidic ring resonators,” MRS Annual Meeting, Boston, MA (2008)
39. **Xudong Fan\***, “Advances in Optical Ring Resonator Based Bio/Chemical Sensing,” The 21st Annual Meeting of The IEEE Lasers & Electro-Optics Society, Newport Beach, CA (2008)
38. Hongying Zhu, Ian M. White, Chungshieh Wu, Paul S. Dale and **Xudong Fan\***, “Label-free breast cancer biomarker detection using opto-fluidic ring resonator biosensor,” BMES annual meeting 2008 at St. Louis, MO (2008)
37. Ian M. White, John Gohring, Paul Dale, and **Xudong Fan\***, “Cancer cell detection and analysis with the optofluidic ring resonator (OFRR) biosensor,” BMES annual meeting 2008 at St. Louis, MO (2008)
36. Jonathan D. Suter, Yuze Sun, John A. Viator, and **Xudong Fan\***, “Integration of opto-fluidic microring resonator lasers for lab-on-a-chip development,” SPIE Optics and Photonics, San Diego, CA (2008).
35. Hongying Zhu, Ian M. White, Jonathan D. Suter, and **Xudong Fan\***, “Phage-based opto-fluidic ring resonator for label-free biomolecule detection,” Proc. Laser Applications to Chemical, Security and Environmental Analysis (LACSEA), Florida (2008).
34. Kenith E. Meissner\*, Zhe Sun, Bhavik Nathwani, William N. Everett, **Xudong Fan**, Gerard L. Cote., and Gerald A. Meininger, “Combining AFM and FRET for studies at the cellular level,” SPIE Photonics West, Proc. SPIE 6863, San Jose (2008).
33. Siyka I. Shopova, Scott Lacey, Ian M. White, Yuze Sun, Hongying Zhu, Po Zhang, and **Xudong Fan\***, “Opto-fluidic Ring Resonator Dye Micro-lasers,” SPIE Photonics West, Proc. SPIE 6872, San Jose (2008, invited paper).
32. Ian M. White, Scott Lacey, John Gohring, Yuze Sun, and **Xudong Fan\***, “Development of versatile waveguide-coupled optofluidic microring resonator devices,” SPIE Photonics West, Proc. SPIE 6896, San Jose (2008).
31. Hongying Zhu, Ian M. White, Jonathan D. Suter, Mohammed Zourob, and **Xudong Fan\***, “Miniaturized opto-fluidic ring resonator for sensitive label-free viral detection,” SPIE Photonics West, Proc. SPIE 6896, San Jose (2008).
30. Ian M. White, Siyka I. Shopova, Hongying Zhu, Jonathan D. Suter, Scott Lacey, Po Zhang,

- Hesam Oveys, Lee Brewington, John Gohring, and **Xudong Fan\***, "Applications of the liquid core optical ring resonator platform," SPIE Optics East, Proc. SPIE 6757, Boston (2007, invited paper).
29. Jonathan D. Suter, Ian M. White, Hongying Zhu, Huidong Shi, Charles W. Caldwell, and **Xudong Fan\***, "Label-Free DNA Detection Using Liquid Core Optical Ring Resonators," SPIE Optics East, Proc. SPIE 6757, Boston (2007).
  28. Ian M. White, John Gohring, and **Xudong Fan\***, "Demonstration of composite signal enhancement from surface enhanced Raman spectroscopy in a liquid core optical ring resonator," Optics East, Proc. SPIE 6759, Boston (2007).
  27. Jay M. Cupps, Darcy Lichlyter, Sheila Grant, and **Xudong Fan\***, "Fabrication and characterization of highly stable quantum dots for biosensing applications," Proc. Institute of Biological Engineering Annual Meeting (2007).
  26. Jonathan D. Suter, Ian M. White, Hongying Zhu, Huidong Shi, Charles W. Caldwell, and **Xudong Fan\***, "Lab-on-a-chip based on liquid core optical ring resonator for DNA detection," Proc. Institute of Biological Engineering Annual Meeting (2007).
  25. Ian M. White, Jonathan D. Suter, Hongying Zhu, Hesam Oveys, Lee Brewington, John Gohring, and **Xudong Fan\***, "Lab-on-a-chip bio/chemical sensing system based on the liquid core optical ring resonator," SPIE Defense and Security Conference, Proc. SPIE 6556, Orlando (2007, invited paper).
  24. Hongying Zhu, Ian M. White, Jonathan D. Suter, Mohammed Zourob, and **Xudong Fan\***, "Capillary electrophoresis with liquid core optical ring resonators," Pittcon' 2007, Chicago, IL, 2007
  23. **Xudong Fan\***, Ian M. White, Hongying Zhu, Jonathan D. Suter, and Hesam Oveys, "Overview of novel integrated optical ring resonator bio/chemical sensors," SPIE Photonics West, Proc. SPIE 6452 (2007, invited paper).
  22. Ian M. White, Hesam Oveys, **Xudong Fan\***, Terry L. Smith, and Junying Zhang, "Demonstration of a liquid core optical ring resonator sensor coupled with an ARROW waveguide array," SPIE Photonics West, Proc. SPIE 6475 (2007).
  21. Jonathan D. Suter, Ian M. White, Hongying Zhu, and **Xudong Fan\***, "Thermal Characterization of Liquid Core Optical Ring Resonators," IEEE/LEOS Optical MEMS, Montana (2006).
  20. Hongying Zhu, Ian M. White, Jonathan Suter, Hesam Oveys, and **Xudong Fan\***, "Novel label-free method for real-time flow rate monitoring in a capillary based on liquid core optical ring resonators," 33rd FACSS, Orlando (2006).
  19. Ian M. White, Hongying Zhu, Jonathan Suter, Hesam Oveys, **Xudong Fan\***, "Liquid core optical ring resonator label-free biosensor array for lab-on-a-chip development," Optics East, Proc. SPIE 6380 (2006).
  18. Ian M. White, Hongying Zhu, Hesam Oveys, and **Xudong Fan\***, "Bio/chemical sensors based on liquid core optical ring resonators," SPIE Defense and Security Conference, Proc. SPIE 6223, Orlando (2006).
  17. Ian M. White, Hesam Oveys, and **Xudong Fan\***, "Demonstration of Sub-Femtomole Sensitivity for Small Molecules with Microsphere Ring Resonator Sensors," SPIE Photonics West, Proc. SPIE 6092, San Jose (2006).
  16. Niranjana M. Hanumegowda, Ian M. White, and **Xudong Fan\***, "Aqueous Mercuric Ion Detection with Microsphere Optical Ring Resonator Sensors," Proc. of American Institute of Chemical

- Engineers Annual Meeting 2005, 563b (2005).
15. Niranjan M. Hanumegowda, Caleb J. Stica, Bijal C. Patel, Ian M. White, and **Xudong Fan\***, "Refractometric Characterization of Microsphere Resonator Based Optical Sensors," Proc. of IEEE Sensors2005, B3L-A.4, 739-741, Irvine (2005).
  14. Ian M. White and **Xudong Fan\***, "Demonstration of Composite Microsphere Cavity and Surface Enhanced Raman Spectroscopy for Improved Sensitivity," SPIE Optics East Proc. SPIE 5994, Boson (2005).
  13. Niranjan M. Hanumegowda, Ian M. White, Caleb J. Stica, Bijal C. Patel, Hesam Oveys, and **Xudong Fan\***, "Development of Label-Free Microsphere Optical Resonator Bio/Chemical Sensors," SPIE Optics East, Proc. SPIE 6004 Boston (2005).
  12. Eric D. Moore, Mark Frogaatt, **Xudong Fan**, Ding Wang, and Matthews R. Michael, "Impulse response compression for vector characterization of highly dispersive devices," OSA Optical Fiber Communications (OSA, Los Angeles, California, March 2004).
  11. **Xudong Fan**, Dwayne L. LaBrake, and James F. Brennan, "Chirped fiber grating characterization with phase ripples," OSA Optical Fiber Communications (OSA, Atlanta, Georgia, March 2003), FC2.
  10. **Xudong Fan**, Hailin Wang, and Mark Lonergan, "Probing radiative recombination in semiconductor nanocrystals with cavity QED," APS March Meeting (Minneapolis, Minnesota, March 2000).
  9. **Xudong Fan**, and Hailin Wang, "Attaching Nanocrystals to a Dielectric Microsphere: A Quantum Dot Microcavity with Extremely High Q-Factors," CLEO/QELS'99 (Baltimore, Maryland, May 1999) – post-deadline paper.
  8. **Xudong Fan**, Scott Lacey, and Hailin Wang, "A quantum-dot microcavity system combining inorganically-capped nanocrystals with high Q dielectric microsphere," OSA Annual Meeting (San Jose, California, September 1999).
  7. **Xudong Fan**, Scott Lacey, and Hailin Wang, "High-Q Whispering Gallery Modes from a Combined System of GaAs Quantum Well and Fused Silica Microsphere," CLEO/QELS'99 (Baltimore, Maryland, May 1999).
  6. **Xudong Fan**, Hailin Wang, H. Q. Hou, and B. E. Hammons, "Biexcitonic effects in semiconductor Microcavities," CLEO/IQEC'98 (San Francisco, California, May 1998).
  5. Hailin Wang, **Xudong Fan**, H. Q. Hou, and B. E. Hammons, "Stimulated emission from GaAs quantum well microcavities: toward laser emission from a few excitons," Proceedings of SPIE, 3283, 221 (1998).
  4. Hailin Wang, **Xudong Fan**, H. Q. Hou, and B. E. Hammons, "Laser emission from semiconductor microcavities: transition from nonperturbative to perturbative regimes," CLEO/IQEC'98 (San Francisco, California, May 1998).
  3. Hailin Wang, **Xudong Fan**, H. Q. Hou, and B. E. Hammons, "Pure dephasing induced by exciton-phonon interactions in GaAs quantum dots," CLEO/IQEC'98 (San Francisco, California, May 1998).
  2. **Xudong Fan**, Hailin Wang, H. Q. Hou, and B. E. Hammons, "Laser emission from semiconductor microcavities: transition from nonperturbative to perturbative regimes," OSA Annual Meeting (Long Beach, California, October 1997).
  1. **Xudong Fan**, Hailin Wang, H. Q. Hou, and B. E. Hammons, "Stimulated emission from semiconductor microcavities," CLEO/QELS'97 (Baltimore, Maryland, May 1997).



**C. Book Chapters**

13. Stephen Arnold\*, Stephen Holler, and **Xudong Fan**, "Taking Microcavity Label-free Single Molecule Detection Deep into the Protein Realm: Cancer Marker Detection at the Ultimate Sensitivity," in *Nanostructures for Optics and Photonics*, NATO Science for Peace and Security Series B: Physics and Biophysics, Editors Baldassare DiBartolo and John Collins, (Springer, The Netherlands, in press)
12. Yuze Sun\* and **Xudong Fan\***, "Optofluidics" in *Applications of Nanoscience in Photomedicine*, Editors: Michael R Hamblin, Pinar Avci, and Shanmugamurthy Fnu, Woodhead Publishing Limited (to appear in 2014)
11. Yuze Sun and **Xudong Fan\***, "Optical micro-ring resonators for chemical vapor sensing," in *OptoChemical NanoSensors*, Editor: Andrea Cusano, Taylor & Francis Group (2012)
10. Hongying Zhu and **Xudong Fan\***, "Label-free optofluidic ring resonator biosensors for sensitive detection of cancer biomarkers" in *Biosensors and biodetection technologies for cancer detection, diagnostics and research*, Editors, Avraham Rasooly and Keith Herold, CRC Press (2012)
9. Jonathan D. Suter and **Xudong Fan\***, "Optofluidic ring resonators" in *Handbook on Optofluidics*, Editors, Aaron Hawkins and Holger Schmidt, CRC Press (2010)
8. Hongying Zhu, Jonathan D. Suter, and **Xudong Fan\***, "Ring Resonator bio/chemical sensors," in *Optical Guided-wave Chemical and Biosensors II*, Editors, M. Zourob, Springer (2010).
7. *Advanced Photonic Structures for Biological and Chemical Sensing*, Editor, **Xudong Fan**, Springer (2009).
6. Yuze Sun and **Xudong Fan\***, "Opto-fluidic ring resonators for chemical sensing", in *Advanced Photonic Structures for Biological and Chemical Sensing*, Editor, **Xudong Fan**, Springer (2009).
5. Siyka I. Shopova and **Xudong Fan\***, "Microfluidic lasers based on opto-fluidic ring resonators", in *Advanced Photonic Structures for Biological and Chemical Sensing*, Editor, **Xudong Fan**, Springer (2009).
4. Ian M. White and **Xudong Fan\***, "Opto-fluidic ring resonator for label-free biosensors", in *Advanced Photonic Structures for Biological and Chemical Sensing*, Editor, **Xudong Fan**, Springer (2009).
3. **Xudong Fan\***, Ian M. White, Siyka Shopova, Hongying Zhu, Jonathan D. Suter, Yuze Sun, and Gilmo Yang, "Optofluidic Ring Resonator Biological and Chemical Sensors" in *Practical applications of microresonators in optics and photonics*, Editor, Andrey Matsko, Taylors and Francis.
2. Mohammed Zourob\*, Souna Elwary, **Xudong Fan**, "Resonant Mirror Biosensor" in *Methods in Biotechnology*, Biosensors and Biodetection: Methods and Protocols Volume 1: Optical-Based Detectors (Methods in Molecular Biology), Editors, Avraham Rasooly and Keith E. Herold, Humana Press.
1. Ian M. White, Hongying Zhu, Jonathan D. Suter, **Xudong Fan\***, Mohammed Zourob, "Label-free detection with the liquid core optical ring resonator sensing platform" *Biosensors and Biodetection: Methods and Protocols Volume 1: Optical-Based Detectors (Methods in Molecular Biology)*, Editors, Avraham Rasooly and Keith E. Herold, Humana Press.

**D. Invited Presentations**

88. Gordon Research Conference - Micro, Nano and Bio Systems (Mount Snow, VT, June 2023)
87. Arizona State University (Tempe, AZ, January 2023)
86. Michigan State University (East Lansing, December 2022)
85. AIChE Annual Meeting (Phoenix, Arizona, November 2022)
84. University of New Mexico (Albuquerque, New Mexico, June 2022)
83. Hong Kong Polytechnic University "Internationalisation at Home (I@H)" (January 2022)
82. 2021 IEEE Photonics Conference (Vancouver, Canada, October 2021)
81. Arizona State University (October 2021)
80. MIT-CHIEF Annual Conference (March 2021)
79. SPIE Photonics West (San Francisco, CA, February 2020)
78. Wayne State University (Detroit, MI, September 2019)
77. University of Science and Technology in China (June 2019)
76. Peking University (June 2018)
75. Royal Society of Chemistry Lab on a Chip Symposium (London, UK, May 2019)
74. CLEO (San Jose, CA, May 2019)
73. Materials Research Society Spring Meeting (Phoenix, AZ, April 2019)
72. Pittcon 2019 (Philadelphia, PA, March 2019)
71. West Virginia University (January 2019)
70. KAUST (November 2018)
69. Frontiers in Electrical and Electronic Engineering, Yonsei University (November 2018)
68. University of Science and Technology of China (August 2018)
67. OSA Advanced Photonics Congress - Optical Sensors" (SENSORS) (Zurich, July 2018)
66. OSA CLEO (San Jose, CA, May 2018)
65. Royal Society of Chemistry Lab on a Chip Symposium (Basel, Switzerland, April 2018)
64. SPIE Photonics West (San Francisco, CA, January 2018)
63. OSA Advanced Photonics Congress (New Orleans, 2017)
62. Optofluidics 2017 (Singapore, July 2017)
61. International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers) (Taiwan, Kaohsiung, June 2017)
60. CLEO (San Jose, May 2017)
59. Pittcon (Chicago, IL, March 2017)
58. Pittcon (Atlanta, GA, March 2016)
57. MRS (Phoenix, AZ, March 2016)
56. SPIE Photonics West, "Frontiers in Biological Detection: From Nanosensors to Systems

- Symposium" (San Francisco, CA, February 2016)
55. SPIE Photonics West, "Laser Resonators, Microresonators, and Beam Control Symposium" (San Francisco, CA, February 2016)
  54. Optofluidics (Taipei, July 2015)
  53. International Symposium on Biophotonics (Optical Society of Korea, Gyeongju, Korea, July 2015)
  52. Pittcon (New Orleans, LA, March 2015)
  51. EPFL (Lausanne, Switzerland, November 2014)
  50. IEEE Photonics Conference (San Diego, October 2014)
  49. Oakland University (Rochester, October 2014)
  48. CLEO (San Jose, CA, June 2014)
  47. 3M Company (St. Paul, MN, May 2014)
  46. WE-Hereaus Seminar, Bad Honnef, Germany (April 2014)
  45. SPIE Photonics West (San Francisco, CA, January 2014)
  44. New York University (New York, January 2014)
  43. IEEE Sensors Conference (Baltimore, November 2013)
  42. Optofluidics 2013 (Hong Kong, August 2013)
  41. Workshop "Optical Nanofiber Applications: From Quantum to Bio Technologies" (ONNA, Japan, June 2013)
  40. SPIE Photonics West (San Francisco, CA, January 2013)
  39. EITA-Bio 2012: Recent Advances in Biomedical Research (Princeton, NJ, October 2012)
  38. Frontiers in Optics 2012 (Rochester, October 2012) (two invited talks)
  37. Optofluidics 2012, plenary talk (Suzhou, September 2012)
  36. Pittcon 2012 (Orlando, FL, March 2012)
  35. SPIE Photonics West 2012 (San Francisco, CA, January 2012)
  34. University of Nebraska - Lincoln (January 2012)
  33. Frontiers in Optics 2011 (San Jose, October 2011)
  32. IEEE Photonics Society Winter Topical Meetings Winter Topical Meetings (Denver, CO, January 2011)
  31. Tutorial at MRS Fall Meeting (Boston, MA, November 2010)
  30. University of Rochester - Electrical Engineering Department (October 2010)
  29. Frontiers in Optics 2010/Laser Science XXVI (Rochester, NY, October 2010)
    - Session: Optical Design for Biomedical Systems
    - Session: Optofluidics in the Near-Field
  28. University of Wisconsin – Madison, Electrical Engineering Department (October 2010)
  27. EUROPT(R)ODE X (Prague, Czech, March 2010)
  26. Optical Fiber Communication Conference Workshop (San Diego, March 2010)

25. University of Oregon (Feb. 2010)
24. SPIE Photonics West (San Francisco, CA, January 2010)
23. Washington University at St. Louis (November 2009)
22. IEEE Engineering in Medicine and Biology 2009 (October 2009)
21. NSF Fiber sensing workshop (Wuhan, China, July 2009)
20. Optofluidic ring resonators for sensitive label-free bioanalytical detection, Pittcon'2009, Chicago, IL (March 2009)
19. BME Department, Drexel University (March 2009)
18. BME Department, University of Michigan (February 2009)
17. AIMBE Annual Meeting (February 2009)
16. A universal label-free biosensing platform based on opto-fluidic ring resonators, SPIE Photonics West, San Jose, CA (January 2009).
15. ECE Department, UIUC (January 2009)
14. Vanderbilt University (Jan. 2009)
13. Northeastern University (October 2008)
12. University of Minnesota (October 2008)
11. Advances in optical ring resonator based bio/chemical sensing, The 21st Annual Meeting of The IEEE Lasers & Electro-Optics Society, Newport Beach, CA (2008).
10. New York Polytech. (May, 2008)
9. Opto-fluidic Ring Resonator Dye Micro-lasers, SPIE Photonics West (2008)
8. Applications of the liquid core optical ring resonator platform, SPIE Optics East (2007)
7. Optofluidic ring resonators: properties, characterization, and applications, CRI Workshop on the "Physics of Microresonators "University of North Carolina at Charlotte (2007)
6. Novel Optical Ring Resonators for Label-free Biodetection, Mid-South Annual Engineering & Sciences Conference (2007)
5. Lab-on-a-chip bio/chemical sensing system based on the liquid core optical ring resonator, SPIE Defense and Security Conference at Orlando FL (2007)
4. Overview of novel integrated optical ring resonator bio/chemical sensors, SPIE, Photonics West, San Jose (2007)
3. Bio-chemical sensor development based on liquid core optical ring resonators, University of Georgia (2006)
2. Nonlinear optical interactions in semiconductor microcavities in the nonperturbative regime, OSA Annul Meeting (Baltimore, Maryland, October 1998)
1. Stimulated emission from semiconductor microcavities: Toward laser emission from a few excitons, Physics and Simulation of Optoelectronic Devices VI (1998)

**E. Patents (unpublished ones are not disclosed)**

26. 20210341422 Integrated micro-photoionization detector with an ultrathin ultraviolet transmission window

25. 20210031201 Differential pressure assisted drainage system
24. 20200158641 Laser emission based microscope
23. 11,181,481 Optofluidic diagnostics system
22. 11,009,487 Multi-modal biosensor having an acoustic detector with integrated optical interferometry
21. 10,845,324 Two-dimensional material based ion exchange membrane sensors
20. 10,768,150 Multi-channel multi-dimensional comprehensive gas chromatography
19. 10,730,044 Assay plate and uses thereof
18. 10,718,738 Miniaturized discharge photo-ionization detector
17. 10,705,061 Microfluidic photoionization detector
16. 10,267,763 Graphene nanoelectronic heterodyne sensor for rapid and sensitive vapor detection
15. 9,581,592, SERS, fluorescence, absorption, and luminescence detection with flow-through multi-hole capillaries
14. 9,341,604 Devices and methods for adaptive micro-gas chromatography
13. 9,151,713 Sensitive intracavity biosensing platform and methods for detection therewith
12. 9,103,727 Composite Fabry-Perot sensor
11. 7,693,369 Hollow core optical ring resonator sensor, sensing methods, and methods of fabrication
10. 7,622,705 Dielectric microcavity fluorosensors excited with a broadband light source
9. 7,595,890 Porous microsphere resonators
8. 7,532,790 Method of coupling light into microresonators
7. 7,444,045 Hybrid sphere-waveguide resonators
6. 7,389,025 Coupling light into microresonators
5. 7,352,933 Dielectric microcavity sensors
4. 7,271,379 Dielectric microcavity fluorosensors excited with a broadband light source
3. 7,259,855 Porous microsphere resonators
2. 7,257,279 Systems and methods for biosensing and microresonator sensors for same
1. 6,781,698 Quality review method for optical components using a fast system performance characterization

#### **F. Publications in popular press/magazines**

10. "Laser made from human blood could help hunt down tumours," New Scientist (2016)
9. "Blood laser exposes body fluid's molecular make-up," Chemistry World (2016)
8. National Public Radio (2014)
7. "Microfluidic Optomechanics," Gaurav Bahl, Kyu Hyun Kim, Wonsuk Lee, Jing Liu, Matthew Tomes, Xudong Fan, and Tal Carmon, Optics and Photonics News (2013)
6. "Liquid lasers detect cancer genes," Ashley N. Paddock, Biophotonics (2012)
5. "A Brighter Beacon," Edyta Zielinska, The Scientist (2012)
4. Cancer Genes Detected with Liquid Lasers (<http://photonics.com/Article.aspx?AID=49915>)
3. Xudong Fan and Yuze Sun, "Optofluidic ring resonators for new gas chromatography applications," SPIE Newsroom, May 2009 (DOI: 10.1117/2.1200904.1621)
2. SERS in a Capillary Could Aid Biochemical Sensing on the Lab-on-a-Chip Scale (<http://www.photonics.com/Article.aspx?AID=32236>)
1. Xudong Fan, Ian M. White, Hongying Zhu, Jonathan D. Suter, and Hesam Oveys\*, "Towards lab-on-a-chip sensors with liquid-core optical ring resonators," SPIE Newsroom, Jan, 2007. (<http://spie.org/x8477.xml>). [Selected as the most read articles on the Newsroom].