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Dr. Mina Hoorfar

Correspondence language: English Sex: Female Date of Birth: 9/17 Canadian Residency Status: Canadian Citizen Country of Citizenship: Canada

Contact Information

The primary information is denoted by (*)

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Primary Affiliation (*)

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Dr. Mina Hoorfar

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes

Degrees

2005/11 - 2006/8	Post-doctorate, Postdoctorate in Applied Science (Engineering), Fuel Cell, Case Western Reserve University Degree Status: Completed
	Supervisors: Dr. Jay A. Mann, 2006/1 - 2006/8
2001/5 - 2005/10	Doctorate, Doctorate in Applied Science (Engineering), Mechanical Engineering, University of Toronto Degree Status: Completed
	Supervisors: Dr. A. W. Neumann, 2001/5 - 2005/10
1999/9 - 2001/4	Master's Thesis, Masters of Applied Science (M.A.Sc.) - Masters, Mechanical Engineering, University of Toronto Degree Status: Completed
	Supervisors: Dr. A. W. Neumann, 1999/9 - 2001/4
1993/9 - 1997/9	Bachelor's, Bachelors of Applied Science (B.A.Sc.), Mechanical Engineering, University of Tehran Degree Status: Completed

Credentials

2004/9 - 2004/12	Visiting Scholar, Leibniz Institute for Polymer Research Visiting Scholar
	Research Disciplines: Mechanical Engineering
	Areas of Research: Surfaces, Interfaces and Thin Layers
	Fields of Application: Industrial Manufacturing and Production

Recognitions

2023/8 Top 25 Canadian Immigrants Canadian Immigrant Prize / Award Being recognized for my outstanding service to Canada

2023/6	Fellow of Canadian Academy of Engineering The Canadian Academy of Engineering Distinction Being recognized for my service and research in the field of engineering
2021/11	Dean's Medal of Distinction University of British Columbia Distinction An honour established in 2015 to celebrate the many achievements of outstanding individuals as part of the UBC Applied Science community.
2021/6	Fellow of Canadian Society of Senior Engineers The Canadian Society of Senior Engineers Distinction Being recognized for my service in engineering
2020/6	Fellow of Canadian Society of Mechanical Engineering Canadian Society for Mechanical Engineering Distinction Awarded to members in good/uninterrupted standing in the society for at least 5 years, who have attained excellence in mechanical engineering and who have contributed actively to the progress of their profession and of society.
2020/3	I Am Accessible Award University of British Columbia Prize / Award The I Am Accessible Award is presented to recognize and celebrate UBC faculty and staff who exemplify the qualities of an inclusive educational institution.
2018/4 - 2019/3	Golden Apple Awards University of British Columbia Prize / Award The Golden Apple Awards are a student-led initiative at UBC to acknowledge instructors/ mentors that are supporting wellbeing in the academic environment.
2018/3	2018 B.C.'s Most Influential Women BC Bussiness Honor To recognize female role models in STEM fields
2017/10	APEGBC - President's Teaching Award of Excellence Association of Professional Engineers and Geoscientists of British Columbia Prize / Award Excellence in Engineering and Geoscience Education
2016/3	Researcher of the Year - 10,000 University of British Columbia Prize / Award This award is given to one researcher per year due to his/her research impacts
2015/5	Outstanding Research Award University of British Columbia Prize / Award For the outstanding researcher at the School of Engineering
2014/5	Provost Award for Teaching Excellence and Innovation - 3,000 (Canadian dollar) University of British Columbia Prize / Award Award for acknowledging teaching innovation and excellence at UBC

2013/7 Research Excellence Award University of British Columbia Prize / Award This award is given annually to the researcher at the School of Engineering with the most outstanding record of research.

User Profile

Researcher Status: Researcher Engaged in Clinical Research?: No

Research Specialization Keywords: Biomolecular detection, Bioprinting, Digital microfluidics, Flow in porous materials, Interfacial science, Metal oxide semiconductor sensors, Microfluidic-based gas sensing, Microfluidic fuel cell, Modeling drop dynamics, Optics, PEM fuel cell, Wetting and adhesion

Disciplines Trained In: Mechanical Engineering

Research Disciplines: Mechanical Engineering

Areas of Research: Drinking Water, Electrochemical and Fuel Cells, Fluid Mechanics, Sensors and Devices

Fields of Application: Energy, Environment, Public Health

Employment

2021/7	Professor Mechanical Engineering, Engineering and Computer Science, University of Victoria Full-time, Professor Tenure Status: Tenure
2021/7 - 2026/7	Dean of Faculty of Engineering and Computer Science Mechanical Engineering, Engineering and Computer Science, University of Victoria Full-time, Term, Professor Tenure Status: Tenure
	Research Disciplines: Mechanical Engineering
	Areas of Research: Electrochemical and Fuel Cells, Nanomaterials, Thermodynamics
	Fields of Application: Biomedical Aspects of Human Health, Energy
2016/7 - 2021/6	Director School of Engineering, Applied Science, University of British Columbia Full-time, Professor Tenure Status: Tenure
2015/7 - 2021/6	Professor School of Engineering, Applied Science, University of British Columbia Full-time, Professor Tenure Status: Tenure
2015/9 - 2016/6	Acting Director School of Engineering, Applied Science, University of British Columbia Full-time, Professor Tenure Status: Tenure
2014/12 - 2015/8	Associate Director- Research and International Engagement School of Engineering, Applied Science, University of British Columbia Full-time, Associate Professor Tenure Status: Tenure

2011/7 - 2015/6	Associate Professor School of Engineering, Applied Science, University of British Columbia Full-time, Associate Professor Tenure Status: Tenure
2007/7 - 2012/6	Status-Only Assistant Professor Mechanical and Industrial Eng., Engineering, University of Toronto Full-time Tenure Status: Tenure Track
2006/9 - 2011/6	Assistant Professor School of Engineering, Applied Science, University of British Columbia Full-time, Assistant Professor Tenure Status: Tenure Track
2005/11 - 2006/9	NSERC Postdoctoral Researcher Chemical Engineering, Engineering, Case Western Reserve University Full-time Tenure Status: Non Tenure Track
1999/9 - 2005/10	Research Assistant Mechanical and Industrial Eng., Engineering, University of Toronto Full-time Tenure Status: Non Tenure Track
2005/1 - 2005/4	Sessional Instructor Mechanical and Industrial Eng., Engineering, University of Toronto Full-time Tenure Status: Non Tenure Track
2004/9 - 2004/12	Visiting Researcher Physical Chemistry & Polymer Physics, Leibniz Institute for Polymer Research
2001/8 - 2002/9	Project Engineer Alpha Global IT, Alpha Laboratories, Toronto
2001/9 - 2002/4	Teaching Assistant Mechanical and Industrial Eng., Engineering, University of Toronto Full-time Tenure Status: Non Tenure Track

Affiliations

The primary affiliation is denoted by (*)

(*) 2021/7 Dean of Engineering and Computer Science, Professor, University of Victoria

Leaves of Absence and Impact on Research

2013/7 - 2014/6 Sabbatical, University of British Columbia

My Sabbatical had no negative impact on my research and provided huge opportunity for my group. During my sabbatical at UC Berkeley and Stanford, I have been exposed to a number of interesting applications in microfluidics: one is the work on the early detection of circulating tumor cells (CTCs) conducted in collaboration with Sohn Lab at UC Berkeley. I developed an efficient numerical tool for optimizing the geometry of a microfluidic device for isolation of CTCs from whole blood. My PhD student fabricated and tested the efficiency of the optimum geometry. The results were presented at MicroTAS 2014. Another research experience that I gained in collaboration with Santiago Lab at Stanford is related to characterization of enzymatic reaction in the presence of electric field. My PhD student has cloned a novel enzyme for glucose detection and immobilized it on a microfluidic chip. The results were accepted for publication in Sensors.

Research Funding History

Awarded [n=6]

2024/4 - 2029/3

Smart Gas Detection: Integrating Pre-Concentration Techniques and Artificial Intelligence Principal Investigator for Multi-Component Gas Sensing for High Sensitivity and Selectivity in Diverse Environmental Conditions, Grant

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC) **Discovery Grant** Total Funding - 230,000 Funding Competitive?: Yes

2022/9 - 2028/9 NSERC CREATE Training Program in 3D Printing Technology and Materials (3DPTM), Co-applicant Grant

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC) CREATE Total Funding - 1,650,000 Portion of Funding Received - 150,000 Funding Competitive?: Yes

Co-applicant : Hsi-Yung Feng; Karen Cheung; Mark MacLachlan; Michael Wolf; Mohsen Akbari; Rizhi Wang; Stephanie Willerth; William H. Turner; Xiaoliang Jin;

Principal Applicant : Hongbin Li

2020/9 - 2026/3 Co-applicant

Microsystems Technologies & Application, Grant

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC) CREATE Total Funding - 1,650,000 Portion of Funding Received - 150,000 Funding Competitive?: Yes

	Co-applicant : Gerd Grau; Ozzy Mermut; Patricia Nieva; Peter Lian; Philip Ferguson; Pouya Rezai; Simon S. Park; Sylvain G. Cloutier; Winnie Ye;		
	Principal Applicant :	Regina Lee	
2022/9 - 2025/9	Microfluidic-assisted	sensing of blood biomarkers for at home health monitoring, Grant	
Co-investigator	Funding Sources:		
		Mathematics of Information Technology and Complex Systems (MITACS)-Accelerate MITACS Accelarate Total Funding - 240,000 Portion of Funding Received - 96,000 Funding Competitive?: No	
	Principal Investigato	r : Mohsen Akbari	
2021/7 - 2025/3	Infrastructure to adva	ance exosome biology & technology, Grant	
Principal Investigator	Funding Sources:		
		Canada Foundation for Innovation (CFI) John R. Evans Leaders Fund Total Funding - 2,000,000 Portion of Funding Received - 1,305,434 Funding Competitive?: Yes	
	Co-applicant : Isaac Li; Jonathan Little		
2024/4 - 2025/3 Principal Investigator	Nanoparticle Trackin Delivery, Exosomes,	g Analysis System Urgently Required for Research in Targeted Drug- Nanoplastics, and Artificial Cell Studies, Grant	
	Funding Sources:		
		Natural Sciences and Engineering Research Council of Canada (NSERC) Research Tools and Instruments Total Funding - 135,513 (Canadian dollar) Funding Competitive?: Yes	
Completed [n=50]			
2021/2 - 2024/9 Principal Investigator	H2Lab: A one-of-a-k injection to combusti	ind laboratory for investigating hydrogen-enriched natural gas from on, Grant	
	Funding Sources:		
		Natural Sciences and Engineering Research Council of Canada (NSERC) Alliance grant Total Funding - 1,425,000 Portion of Funding Received - 570,000 Funding Competitive?: Yes	
	Co-applicant : Dimitr Sina Kheirkhah; Sun	y Sediako; Homayoun Najjaran; Joshua Brinkerhoff; Lukas Bichler; ny Li	
2021/9 - 2024/8 Co-applicant	Engineering gut osm	olality biosensors, Grant	

	Funding Sources:		
		Weston Family Foundation Weston Catalyst Total Funding - 450,000 Portion of Funding Received - 112,500 Funding Competitive?: Yes	
	Co-applicant : Laure	nt Potvin-Trottier;	
	Principal Applicant :	Carolina Tropini	
2020/7 - 2024/6 Co-applicant	Green roll-to-roll Mar Electronics, Grant	nufacturing of Low-cost High-Performance Large Area Flexible	
	Funding Sources:		
		Natural Sciences and Engineering Research Council of Canada (NSERC) Alliance grant Total Funding - 334,000 Portion of Funding Received - 175,000 Funding Competitive?: Yes	
	Principal Applicant :	Peyman Servati	
2023/9 - 2024/3	Eradication and commodification of invasive species: scotch broom and gorse, Grant		
Principal Investigator	Funding Sources:		
		Lakes Foundation Gorse Eradication Initiative Total Funding - 50,000 Portion of Funding Received - 50,000 Funding Competitive?: No	
2018/4 - 2024/3	Investigation of gas f	low in microstructures for highly selective sensing, Grant	
Principal Investigator	Funding Sources:		
		Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant Total Funding - 230,000 Portion of Funding Received - 230,000 Funding Competitive?: Yes	
2022/2 - 2024/2 Principal Investigator	Detection system for facilities, Grant	screening of Household Hazardous Waste (HHW) in recycling	
	Funding Sources:		
		Natural Sciences and Engineering Research Council of Canada (NSERC) Alliance Grant Total Funding - 97,500 Portion of Funding Received - 60,000 Funding Competitive?: Yes	
	Co-applicant : Homa	youn Najjaran	

2020/11 - 2023/10 Cluster for Translation Extracellular Vesicle Research, Grant Principal Investigator

Funding Sources:

University of British Columbia (UBC) Okanagan Eminence Program Total Funding - 567,000 Portion of Funding Received - 285,000 Funding Competitive?: Yes

Co-applicant : Isaac Li; Jonathan Little

2023/2 - 2023/9 L2M NSERC - Powdered Iron Supplement for Redispersion and Quick Consumption, Principal Investigator Grant

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC) Idea to Innovation (I2IPJ) Total Funding - 20,000 Portion of Funding Received - 20,000 Funding Competitive?: Yes

2020/10 - 2023/3 Feasibility Assessment and Development of Knowledge, Technology, and Tools for a Principal Investigator Reliable Touch Interface for Metallic and Non-Metallic Surfaces, Grant

Funding Sources:

Mathematics of Information Technology and Complex Systems (MITACS) Accelerate Total Funding - 180,000 Portion of Funding Received - 180,000 Funding Competitive?: Yes

2019/1 - 2023/3 Handheld microfluidic device for screening THC, Grant

Principal Investigator Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC) Collaborative Research and Development Total Funding - 825,000 Portion of Funding Received - 619,000 Funding Competitive?: Yes

Co-applicant : Homayoun Najjaran

2017/11 - 2021/10 Exosome cluster: development of an in-situ exosome isolation platform, Grant

Principal Investigator Funding Sources:

University of British Columbia (UBC) Okanagan Eminence Fund Total Funding - 305,000 Portion of Funding Received - 152,500 Funding Competitive?: Yes

Co-applicant : Isaac Li

2018/10 - 2021/9 Development of Wireless In-Situ Sensors for Dissolved Gases in Liquid Waste, Grant Principal Investigator

	Funding Sources:		
	2017/1 - 2019/12	Natural Sciences and Engineering Research Council of Canada (NSERC) Collaborative Research and Development Total Funding - 690,000 Portion of Funding Received - 540,000 Funding Competitive?: Yes	
	Co-applicant : Ali Ah	madi; Homayoun Najjaran	
2020/9 - 2021/8 Co-applicant	PCR lab-on-chip sys case, Grant	tem for rapid and sensitive identification of SARS-CoV-2 infected	
	Funding Sources:		
		Mathematics of Information Technology and Complex Systems (MITACS) Accelerate Total Funding - 240,000 Portion of Funding Received - 120,000 Funding Competitive?: Yes	
	Principal Applicant :	Sepideh Pakpour	
2018/1 - 2021/5	Development of a br	eath analyzer for diabetes, Contract	
Principal Investigator	Funding Sources:		
		Breathtec Biomedical Inc. R&D Total Funding - 246,500 Portion of Funding Received - 246,500 Funding Competitive?: No	
2018/4 - 2021/5	Investigation of gas flow in microstructure for highly selective sensing, Grant		
Principal Investigator	Funding Sources:		
	-	Natural Sciences and Engineering Research Council of Canada (NSERC) DND/NSERC Discovery Grant Supplements Total Funding - 120,000 Portion of Funding Received - 120,000 Funding Competitive?: Yes	
2020/10 - 2021/4 Co-applicant	Development of an A Prediction, Contract	Air Surveillance Tool for Population-Wide COVID-19 Detection and	
	Funding Sources:		
		Government of Canada Innovation for Defence Excellence and Security (IDEaS) Total Funding - 200,000 Portion of Funding Received - 100,000 Funding Competitive?: Yes	
	Principal Applicant :	Sepideh Pakpour	
2019/5 - 2021/4 Co-applicant	Urgent Upgrade of Atomic Layer Deposition with Plasma Capability to Accelerate Energy Storage, Energy Conversion and Gas Sensing Research, Grant		

	Funding Sources:	
		Natural Sciences and Engineering Research Council of Canada (NSERC) Research Tool and Instruments (RTI) Total Funding - 149,480 Portion of Funding Received - 24,913 Funding Competitive?: Yes
	Co-applicant : Alexa	nder Uhl; Deborah Roberts; Mohammad Zarifi;
	Principal Applicant :	Jian Liu
2019/5 - 2021/4	Trojan tag strategy for	or exosome liquid biopsy, Grant
Co-applicant	Funding Sources:	
	-	Natural Sciences and Engineering Research Council of Canada (NSERC) New Frontiers in Research Fund - Exploration Total Funding - 250,000 Portion of Funding Received - 83,000 Funding Competitive?: Yes
	Co-applicant : Fred N	Menard;
	Principal Applicant :	Isaac Li
2020/4 - 2021/3	Multi-cell Temperatu	re-controlled UV-Visible spectrophotometer, Grant
Principal Investigator	Funding Sources:	
		University of British Columbia Critical Research Equipment & Tools Program (CRET) Total Funding - 45,052 Portion of Funding Received - 45,052 Funding Competitive?: Yes
2020/4 - 2021/3 Principal Investigator	Environmental Test (Thin-film Sensing an	Chamber Urgently Required to Develop and Calibrate Microfluidic and density of the density of th
	Funding Sources:	
		Natural Sciences and Engineering Research Council of Canada (NSERC) Research Tool and Instruments (RTI) Total Funding - 102,927 Portion of Funding Received - 61,756 Funding Competitive?: Yes
	Co-applicant : Alexa	nder Uhl; Homayoun Najjaran; Jian Liu; Mohammad Zarifi
2020/3 - 2021/2 Principal Applicant	Feasibility assessme mercaptan natural ga	ent and development of knowledge, technology, and tools for as odorant monitoring, Grant
	Funding Sources:	
		Mathematics of Information Technology and Complex Systems (MITACS) Accelerate Total Funding - 15,000 Portion of Funding Received - 15,000 Funding Competitive?: Yes
2020/7 - 2020/12	Electrochemical-bas	ed Aptasensor for the early detection of COVID-19, Grant

Principal Investigator Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC) Alliance COVID-19 grants Total Funding - 50,000 Portion of Funding Received - 50,000 Funding Competitive?: Yes

2018/1 - 2020/12 Developing internal fiber chromatography, a new column designed for liquid, gas and Principal Investigator supercritical fluid chromatography, Grant

Funding Sources:

2016/1 - 2018/12	Mathematics of Information Technology and Complex Systems (MITACS) Accelerate Cluster Total Funding - 126,000 Portion of Funding Received - 65,000 Funding Competitive?: Yes

Co-applicant : Homayoun Najjaran; Wesley Zandberg

2020/1 - 2020/12 Developing a microfluidic-based cannabis analyzer, Contract

Principal Investigator Funding Sources:

Vitalis Extraction Technology MITACS Accelarate Total Funding - 47,600 Portion of Funding Received - 47,600 Funding Competitive?: No

2018/5 - 2020/4 Feasibility Assessment and Development of Knowledge, Technology, and Tools for Principal Investigator Reliable Hydrogen Injection into Natural Gas Delivery Systems, Grant

Funding Sources:

Mathematics of Information Technology and Complex Systems (MITACS) Accelerate Total Funding - 600,000 Portion of Funding Received - 350,000 Funding Competitive?: Yes

Co-applicant : Dimitry Sediako; Joshua Brinkerhoff; Lukas Bichler; Sina Kheirkhah; Sunny Li

2017/12 - 2020/4Development and Field Test of Highly Sensitive and Selective Microfluidic Gas Sensor forPrincipal InvestigatorMethane Leak Detection, Grant

Funding Sources:

2016/9 - 2018/8 Natural Sciences and Engineering Research Council of Canada (NSERC) Collaborative Research and Development Total Funding - 388,000 Portion of Funding Received - 194,000 Funding Competitive?: Yes

Principal Applicant : Homayoun Najjaran

2018/9 - 2019/12 Development of a liquid handling platform for DNA-based detection, Contract

Co-applicant

	Funding Sources:		
		Bio-Rad Laboratories USA R&D Total Funding - 168,000 Portion of Funding Received - 84,000 Funding Competitive?: No	
	Principal Applicant :	Homayoun Najjaran	
2018/4 - 2019/3 Principal Investigator	Addition of a mass flo Grant	ow controller into the plasma machine for etching microfluidic devices,	
	Funding Sources: 2015/4 - 2016/3	University of British Columbia Emergency Fund Competition- Equipment Total Funding - 4,996 Portion of Funding Received - 4,996 Funding Competitive?: Yes	
2018/4 - 2019/3 Principal Investigator	Gas chromatography reference and identif areas, Grant	v & mass spectrometry (GC-MS) system required for calibration ication of various target molecules for interdisciplinary research	
	Funding Sources:		
		Natural Sciences and Engineering Research Council of Canada (NSERC) Research Tools and Instruments Total Funding - 148,758 Portion of Funding Received - 30,000 Funding Competitive?: Yes	
	Co-applicant : Sina k	Kheirkhah; Soheil Mahmoud; Susan Murch; Wesley Zandberg	
2013/5 - 2018/4	Principles and Applications of Fluidics in Microsystems, Grant		
Principal Investigator	Funding Sources:		
	2013/5 - 2018/4	Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grants Program (Individual) Total Funding - 160,000 (Canadian dollar) Portion of Funding Received - 160,000 (Canadian dollar) Funding Competitive?: Yes	
2017/4 - 2018/3 Co-applicant	Atomic Force Micros Researches, Grant	copy System for Biomedical, Materials, and Environmental	
	Funding Sources:		
	2017/4 - 2018/3	Natural Sciences and Engineering Research Council of Canada (NSERC) Research Tools and Instruments Total Funding - 146,411 Portion of Funding Received - 21,000 Funding Competitive?: Yes	
	Co-applicant : Abbas	Milani; Deborah Roberts; Ian Foulds; Isaac Li; Lukas Bichler;	
	Principal Applicant :	Keekyoung Kim	
2011/5 - 2017/4	Innovative Water Ma	nagement Strategies to Advance PEM Fuel Cell Technology, Grant	

Principal Investigator	Funding Sources:		
	2011/5 - 2016/4	Canada Foundation for Innovation (CFI) Infrastructure Operating Fund Total Funding - 38,550 (Canadian dollar) Portion of Funding Received - 38,550 (Canadian dollar) Funding Competitive?: Yes	
2016/4 - 2017/3 Co-applicant	Profilometer Urgently Needed to Measure Thickness of Films Made in the Applied Micro and Nanosystems Facility, Grant		
	Funding Sources:		
	2016/4 - 2017/3	Natural Sciences and Engineering Research Council of Canada (NSERC) Research Tools and Instruments Total Funding - 41,800 Portion of Funding Received - 7,000 Funding Competitive?: Yes	
	Co-applicant : Homa	youn Najjaran; Ian Foulds; Jonathan Holzman; Keekyoung Kim;	
	Principal Applicant : Kenneth Chau		
2014/5 - 2017/3	Direct Cryptosporidium Detection for Developed and Developing Nations, Grant		
Principal Investigator	Funding Sources:		
	2014/5 - 2017/3	IC-IMPACTS India-Canada Centre for Innovative Multidisciplinary Partnership to Accelerate Community Total Funding - 220,000 (Canadian dollar) Portion of Funding Received - 220,000 (Canadian dollar) Funding Competitive?: Yes	
2016/1 - 2016/12	Mass flow controller for fuel cell station, Grant		
Principal Applicant	Funding Sources:		
	2016/1 - 2016/12	University of British Columbia School of Engineering Research Tools (SERT) Fund Total Funding - 4,000 Portion of Funding Received - 4,000 Funding Competitive?: No	
2015/11 - 2016/4 Principal Applicant	Development of a 3D sensors, Grant	D-printed microfluidic channel to enhance selectivity of methane	
	Funding Sources: 2015/11 - 2016/4	Natural Sciences and Engineering Research Council of Canada (NSERC) Engage Total Funding - 25,000 Portion of Funding Received - 0 Funding Competitive?: Yes	
2015/3 - 2016/2 Principal Applicant	School of Engineerin	ng Partners with Industry Showcase, Grant	

	Funding Sources:		
	2015/3 - 2016/2	Natural Sciences and Engineering Research Council of Canada (NSERC) Pacific Regional Opportunities Fund Total Funding - 1,950 Portion of Funding Received - 1,950 Funding Competitive?: No	
2016/8 - 2016/1	Development of Wireless In-Situ Sensors for Dissolved Gases in Liquid Waste, Grant		
Principal Applicant	Funding Sources:		
	2016/8 - 2017/1	Natural Sciences and Engineering Research Council of Canada (NSERC) Engage Total Funding - 25,000 Portion of Funding Received - 25,000 Funding Competitive?: Yes	
2014/4 - 2015/12	Okanagan Microfabr	ication Facility, Grant	
Co-applicant	Funding Sources:		
	2011/4 - 2012/4	Western Economic Diversification Canada WDF Total Funding - 760,000 (Canadian dollar) Portion of Funding Received - 110,000 Funding Competitive?: Yes	
	Co-applicant : Deborah Roberts; Homayoun Najjaran; Kenneth Chau; Stephen O'leary; Thomas Johnson;		
	Principal Applicant :	Jonathan Holzman	
2015/1 - 2015/12	Benchtop Plasma Cleaning/Etching System, Grant		
Principal Applicant	Funding Sources:		
	2015/1 - 2015/12	University of British Columbia School of Engineering Research Tools (SERT) Fund Total Funding - 15,300 Portion of Funding Received - 5,100 Funding Competitive?: No	
	Co-applicant : Homa	youn Najjaran; Keekyoung Kim	
2013/5 - 2015/5 Co-applicant	Detection of Pathogens in Drinking Water to Prevent Waterborne Disease Transmission in Developing Countries, Grant		
	Funding Sources: 2012/5 - 2014/5	International Development Research Centre (IDRC) Canadian Partnerships Small Grants Total Funding - 60,000 (Canadian dollar) Portion of Funding Received - 30,000 (Canadian dollar) Funding Competitive?: Yes	
	Principal Applicant :	Deborah Roberts	
2014/5 - 2015/4 Principal Applicant	Classification of wine analyzers, Grant	e aromas using digital microfluidic diffusion channel-based gas	

Funding Sources:

2014/5 - 2015/4 Natural Sciences and Engineering Research Council of Canada (NSERC) Engage Total Funding - 25,000 (Canadian dollar) Portion of Funding Received - 25,000 (Canadian dollar) Funding Competitive?: Yes

2014/5 - 2015/4 Cost effective conformal coating machine for micro/nanofabrication processes, Grant

Principal Applicant Funding Sources:

2014/5 - 2015/4 Natural Sciences and Engineering Research Council of Canada (NSERC) Research Tools and Instruments Total Funding - 46,545 (Canadian dollar) Portion of Funding Received - 24,000 (Canadian dollar) Funding Competitive?: Yes

Co-applicant : Homayoun Najjaran

2013/12 - 2014/12 Development of a Methodology for the Detection of Water Pathogens Using a Reactive Surface Capture Device, Grant

Funding Sources:

2011/12 - 2012/9	University of British Columbia (UBC) Okanagan
	Individual Research Grant
	Total Funding - 5,000 (Canadian dollar)
	Portion of Funding Received - 5,000
	Funding Competitive?: Yes

2013/11 - 2014/12 Development of a magnetic-based Lab-on-chip Device for DNA Purification, Grant

Funding Sources:

- 2012/11 2013/5 Natural Sciences and Engineering Research Council of Canada (NSERC) Engage Total Funding - 25,000 (Canadian dollar) Portion of Funding Received - 25,000 Funding Competitive?: Yes
- 2013/5 2014/4Measurement of water vapor transport through gas diffusion layers for various flow field
designs, Grant

Funding Sources:

2013/5 - 2014/4 Natural Sciences and Engineering Research Council of Canada (NSERC) Engage Total Funding - 25,000 (Canadian dollar) Portion of Funding Received - 25,000 (Canadian dollar) Funding Competitive?: Yes

2013/5 - 2013/12LOC prototype for isolation and concentration measurements of nanoparticles as a
surrogate for microvesicle, Grant

Funding	Sources:
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2013/5 - 2013/10	University of British Columbia
	Individual Research Grant
	Total Funding - 5,000 (Canadian dollar)
	Portion of Funding Received - 5,000 (Canadian dollar)
	Funding Competitive?: Yes

2013/6 - 2013/12 20 Amp Power Booster for VersaStat4/FRA potentiostat/impedance unit, Grant

Principal Applicant Funding Sources:

2012/6 - 2012/6 University of British Columbia Emergency Fund Competition- Equipment Total Funding - 14,000 (Canadian dollar) Portion of Funding Received - 14,000 (Canadian dollar) Funding Competitive?: Yes

2012/6 - 2013/12Development of a capture device replacing filtration and purification processes used in
USEPA 1623 method, Grant

Funding Sources:

- 2012/6 2012/11 Natural Sciences and Engineering Research Council of Canada (NSERC) Engage Total Funding - 25,000 (Canadian dollar) Portion of Funding Received - 25,000 Funding Competitive?: Yes
- 2009/11 2013/12Online Monitoring of Distribution Systems Investigating Water Quality Failure Events,Co-applicantGrant

Funding Sources:

2009/11 - 2012/11 Natural Sciences and Engineering Research Council of Canada (NSERC) Strategic Project Grant Total Funding - 274,000 (Canadian dollar) Portion of Funding Received - 100,000 Funding Competitive?: Yes

Co-applicant : Homayoun Najjaran;

Principal Investigator : Sadiq, Rehan

Under Review [n=6]

2023/9 - 2024/7 Development of non-scratch coating for household appliances, Grant

Principal Investigator Funding Sources:

AeroPress Inc. MITACS Accelarate Total Funding - 200,000 Portion of Funding Received - 200,000 Funding Competitive?: No

2020/12 - 2022/11 Going with the flow: A microfluidics-based platform to standardize microplastics isolation and quantification in biological samples from wild and captive terrestrial mammals and their habitat, Grant

	Funding Sources:	
		Government of Canada Increasing knowledge on plastic pollution initiative Total Funding - 200,000 Portion of Funding Received - 200,000 Funding Competitive?: Yes
2020/11 - 2022/10	EMBRYOSAFE - A r	nicrofluidics platform to improve embryo biosafety for trading, Grant
Principal Applicant	Funding Sources:	
		Natural Sciences and Engineering Research Council of Canada (NSERC) Alliance grant Total Funding - 120,000 Portion of Funding Received - 120,000 Funding Competitive?: Yes
2021/1 - 2022/1	PROTO-FACTORY	4.0—Digital Innovation in Composites Manufacturing, Grant
Co-applicant	Funding Sources:	
		Biocap Canada Foundation Innovation Fund (IF) Total Funding - 8,289,153 Portion of Funding Received - 1,065,493 Funding Competitive?: Yes
	Co-applicant : Abbas Najjaran; Reza Vazir	s Sadeghzadeh Milani; Bhushan Gopaluni; Frank Wood; Homayoun ri; Xiaoliang Jin;
	Principal Applicant :	Anoush Poursartip; Raymond Ng
2021/1 - 2022/1	Environmental Testir	ng Facility, Grant
Co-applicant	Funding Sources:	
		Canada Foundation for Innovation (CFI) Innovation Fund (IF) Total Funding - 19,100,000 Portion of Funding Received - 2,156,543 Funding Competitive?: Yes
	Co-applicant : Ali Mo	Manus; Glen Foster; Kevin Golovin; Neil Eves; Robert Shave;
	Principal Applicant : Phil Ainslie	
2021/1 - 2022/1	FOOD+: Food for the	e Future, Grant
Co-applicant	Funding Sources:	
		Canada Foundation for Innovation (CFI) Innovation Fund (IF) Total Funding - 8,963,079 Portion of Funding Received - 965,430 Funding Competitive?: Yes
	Co-applicant : Dean Brown; Thuy Dang; V	na Gibson; Joerg Bohlmann; Kirk Bergstrom; Michael Deyholos; Paula Wesley Zandberg;
	Principal Applicant :	Susan Murch

Courses Taught

2006/01/01 -	Instructor, Technical University of British Columbia
2006/04/30	Course Title: Thermodynamics and Heat Transfer
	Course Code: APSC 252
	Course Level: Undergraduate
	Academic Session: Winter
	Number of Students: 43
	Number of Credits: 3
	Lecture Hours Per Week: 3
	Tutorial Hours Per Week: 2
	Lab Hours Per Week: 0
	Guest Lecture?: No

Student/Postdoctoral Supervision

Bachelor's [n=58]	
2023/9 - 2023/12 Principal Supervisor	Elise Lownsbrough, University of Victoria Thesis/Project Title: Engineering Aspects of Harvesting Gorse Present Position: BEng, University of Victoria
2023/7 - 2023/10 Principal Supervisor	Guanghao Chen, University of Victoria Thesis/Project Title: Portable H2 sensing Present Position: BEng, South East University
2023/7 - 2023/10 Principal Supervisor	Giovanna Romero, University of Victoria Thesis/Project Title: Portable device for detecting and sorting of hazardous household waste Present Position: BEng, Instituto TecnoIogico de Estudios Superiores de Monterrey
2023/6 - 2023/9 Principal Supervisor	Ajitha Nayac, University of Victoria Thesis/Project Title: Microplastic detection Present Position: BEng, SRM Institute of Science and Technology
2023/5 - 2023/8 Principal Supervisor	Evyatar Wind-Granot, University of Victoria Thesis/Project Title: Suppressing humidity sensitivity in H2 sensors Present Position: BEng, University of Victoria
2022/9 - 2022/12 Principal Supervisor	Julia Jungwirth, University of Victoria Thesis/Project Title: Microplastic detection based on Nile Red Present Position: BEng, University of Victoria
2022/8 - 2022/10 Principal Supervisor	Zetao Miao, University of Victoria Thesis/Project Title: Triboelectric sensors Present Position: BEng, South East University
2022/6 - 2022/9 Principal Supervisor	Dattaprasad Balasaheb Khot, University of Victoria Thesis/Project Title: Study on VOC adsorption from plants Present Position: BEng, SWVSM'S Tayasaheb Kore Institute of Engineering and Technology
2022/5 - 2022/8 Principal Supervisor	Michelle Martindale, University of Victoria Thesis/Project Title: Development of VOC gas sensors Present Position: BEng, University of Victoria

2022/5 - 2022/8 Principal Supervisor	Bipin Venkateswaran, University of Victoria Thesis/Project Title: Development of smellsensing device Present Position: BEng, Indian Institute of Technology Madras
2020/8 - 2021/4 Principal Supervisor	Rhys Herzberg, University of British Columbia Thesis/Project Title: Design of an automated organoid microinjection platform Present Position: 4th year BASc, UBC
2020/5 - 2020/8 Principal Supervisor	Isabelle Adams, University of British Columbia Thesis/Project Title: Development of a microencapsulation platform for oral delivery of probiotic Present Position: Field service tech, USNR
2020/5 - 2020/8 Principal Supervisor	Shyam Kumar, IIT Thesis/Project Title: Development of a gas sensor for THC detection Present Position: MASc, Northeastern University
2020/5 - 2020/8 Principal Supervisor	Ahmed Zoher Sihorwala, IIT Thesis/Project Title: Development of a gas sensor for detection of natural gas leakage Present Position: PhD, University of Texas
2020/5 - 2020/8 Principal Supervisor	Giulia Ross, University of British Columbia Thesis/Project Title: Development of a highly-specific exosome isolation and characterization platform Present Position: MASc, UBC
2019/9 - 2023/4 Principal Supervisor	Vania Ahmadi, University of British Columbia Thesis/Project Title: Developing an impedence-based bacterial detection system on a microfluidic platform Present Position: Environmental Health Scientist
2019/9 - 2023/4 Principal Supervisor	Rudransh Kumar, University of British Columbia Thesis/Project Title: Designing and building a microinjection system to study the effects of designer probiotics on enteroids Present Position: MASc, Uttrakhand Technical University
2019/9 - 2023/4 Principal Supervisor	Sylvia Lam, University of British Columbia Thesis/Project Title: Designing an automated training setup to calibrate an array of microfluidic-based gas sensors Present Position: Mechatronics Engineer, Hexagon Purus Systems
2019/9 - 2020/3 Principal Supervisor	Kaden Workun, University of British Columbia Thesis/Project Title: Microencapsulation platform for oral delivery of microbiome-based therapy for the treatment of inflammatory bowel disease Present Position: MASc, UBC
2019/5 - 2020/4 Principal Supervisor	Graham Mcintosh, University of British Columbia Thesis/Project Title: Designing, building and testing bench top vaporization device for H2S detection from wastewater Present Position: Mechanical Engineer, Airborne Engines Ltd.
2019/5 - 2019/9 Principal Supervisor	Emily Earl, University of British Columbia Thesis/Project Title: Developing graphical user interface and controls for breath analysis and nuisance gas detectors Present Position: Lab Operation Manager, University of Victoria
2019/5 - 2020/4 Principal Supervisor	Joel Hunter, University of British Columbia Thesis/Project Title: Designing, building and testing bench top for breath analyser Present Position: Graduate mechanical EIT, Zanron Mechanical Services

2019/5 - 2021/4 Principal Supervisor	Shahera Islam, University of British Columbia Thesis/Project Title: Testing the resolution of particle separation by dielectrophoresis on microfluidic chip Present Position: Electrical engineer, Blackberry QNX
2019/5 - 2022/4 Principal Supervisor	George Ng, University of British Columbia Thesis/Project Title: Building, testing and programming prototype devices for natural gas dectection and THC breathanalysis + Development of a highly-specific exosome isolation and characterization platform Present Position: Quality Assurance Engineer, Firmware
2018/5 - 2019/4 Principal Supervisor	Sheyla Alvarez, University of British Columbia Thesis/Project Title: Development of a user interface to control a handheld version of the natural gas leak detector Present Position: Firmware Developer Level II, Reliable Controls
2018/5 - 2019/4 Principal Supervisor	Macleod Grant, University of British Columbia Thesis/Project Title: Designing of a handheld THC breath analyzer and calibrating the device using data from human subjects Present Position: Fire Protection Designer, Introba
2018/5 - 2019/9 Principal Supervisor	Matthew Shaunessy, University of British Columbia Thesis/Project Title: Microfabrication of microfluidic chips for biomolecule separation Present Position: Naval Architect, Robert Allan Ltd.
2018/5 - 2018/9 Principal Supervisor	Cedric Grosselindemann, University of Karlsruhe Thesis/Project Title: Development of an experimental setup for methane detection using microfluidic olfaction platform Present Position: Scientist, University of Karlsruhe
2017/9 - 2021/4 Principal Supervisor	Isaac Alexander, University of British Columbia Thesis/Project Title: Building and testing an automated system to calibrate microfluidic- based sensors Present Position: MASc, UBC
2017/5 - 2019/4 Principal Supervisor	David Afantchao, University of British Columbia Thesis/Project Title: Development of a valve system for automatic sensor exposure and recovery Present Position: Robotics Engineer, Fives Group
2017/5 - 2019/4 Principal Supervisor	Niels de Vries, University of British Columbia Thesis/Project Title: Development of an efficient heating element for releasing VOCs from waste liquid samples Present Position: Research Lead, Copperleaf Technologies
2017/5 - 2018/4 Principal Supervisor	Kim T. Nguyen, University of British Columbia Thesis/Project Title: Implementation of PCA for feature extraction from microfluidic olfaction signals Present Position: Software Developer, Microsoft
2017/5 - 2020/4 Principal Supervisor	Eujin Kim, University of British Columbia Thesis/Project Title: Designing and fabricating microfluidic gas sensors for a wide range of applications in gas detection Present Position: Test Engineer, Greenlight Innovation Corp.
2017/5 - 2021/4 Principal Supervisor	Abigail Logel, University of British Columbia Thesis/Project Title: Development of mass flow controller system for gas sensing Present Position: Mechanical Engineer, CWA Engineers Inc.

2017/1 - 2017/8 Principal Supervisor	Carmen Mcintosh, University of British Columbia Thesis/Project Title: Wine testing using microfluidic olfaction platform Present Position: Technical Sales Engineer, Imperial Oil
2016/5 - 2017/4 Principal Supervisor	Jacques Rousseau, University of British Columbia Thesis/Project Title: Development of a selective microfluidic-based gas sensor for detection of pentane Present Position: MASc, UBC
2016/5 - 2018/4 Principal Supervisor	Justin Hui, University of British Columbia Thesis/Project Title: Fabrication of a polymeric membrane with minimum fuel crossover for direct methanol fuel cells Present Position: PhD, Harvard
2016/5 - 2019/4 Principal Supervisor	Tylor Ho, University of British Columbia Thesis/Project Title: Development of a gas sensor for detection of H2S Present Position: MASc, UBC
2015/9 - 2016/4 Principal Supervisor	Moustafa Elnaggar (Completed), University of British Columbia Thesis/Project Title: Development of a microbial fuel cell for H2S removal Present Position: Engineer, Ontario Power Generation
2015/5 - 2017/9 Co-Supervisor	Andre Van den Berg, University of British Columbia Thesis/Project Title: Cancer cell separation in digital microfluidic platforms Present Position: Technical Director, LandInfo Technologies Inc.
2015/5 - 2017/4 Principal Supervisor	Kristof Schlagintweit, University of British Columbia Thesis/Project Title: Development of a lab-on-chip device for neuron cells growth Present Position: Project Manager, KJ Solutions
2015/5 - 2015/9 Principal Supervisor	Ajit Vikram (Completed) , Indian Institute of Technology Kanpur Thesis/Project Title: Measurement of the electrical resistance of the gas diffusion layer Present Position: PhD, University of Illinois Urbana-Champaign
2015/5 - 2015/9 Principal Supervisor	Prabudhya R. Chowdhury (Completed), Indian Institute of Technology Kharagpur Thesis/Project Title: Measurement of the thermal resistance of the gas diffusion layer Present Position: PhD, Purdue University
2015/5 - 2015/8 Principal Supervisor	Anushka Gupta (Completed) , Indian Institute of Technology Kanpur Thesis/Project Title: Cell patterning on digital microfluidic platforms Present Position: PhD, UC Berkeley
2015/5 - 2017/4 Principal Supervisor	Jamie Kawchuk, University of British Columbia Thesis/Project Title: Impedance testing of a polymeric membrane with minimum fuel crossover for direct methanol fuel cells Present Position: Maintenance Worker, Mike Wiegele Helicopter Skiing
2015/5 - 2015/9 Principal Supervisor	Bret Nestor (Completed) , University of British Columbia Thesis/Project Title: Tissue engineering on digital microfluidic platforms Present Position: PhD, UC Berkeley
2015/1 - 2017/5 Principal Supervisor	George Mason, University of British Columbia Thesis/Project Title: Development of humidity control membrane using electrospinning Present Position: MASc, UBC
2014/9 - 2015/8 Principal Supervisor	Shuhao Wu (Completed) , SPR in a National Lab of China Thesis/Project Title: Optimizing evaporation/adsorption effects in microfluidics Present Position: PhD, Columbia University

2014/9 - 2015/8 Principal Supervisor	Brendon Skow (Completed), University of British Columbia Thesis/Project Title: Relationship between GDL properties and fuel cell performance Present Position: Engineer, Anodyne Electronics Manufacturing Corp.
2014/9 - 2018/4 Principal Supervisor	Singh Bachhal, University of British Columbia Thesis/Project Title: Development of sensitive gas sensors Present Position: Lead Engineer, STEMCELL
2014/9 - 2016/4 Principal Supervisor	Maria D. D. L. Derby (Completed), National Autonomous University of Mexico (UNAM) Thesis/Project Title: Development of digital microfluidic platform for cell culture Present Position: MASc, UCLA
2014/9 - 2015/8 Principal Supervisor	Craig Jee (Completed) , University of British Columbia Thesis/Project Title: Study of microsphere in the pathogen capture Present Position: Engineer, Multi-Power Products Ltd
2014/5 - 2014/9 Principal Supervisor	Kaustav Bera (Completed), Indian Institute of Technology Kharagpur Thesis/Project Title: Development of an integrated micro-sensor for water quality monitoring Present Position: PhD, MIT
2012/5 - 2013/4 Principal Supervisor	Anthony Hicks (Completed) , University of British Columbia Thesis/Project Title: Characterization of gas diffusion layers Present Position: Engineer, Suncor Energy
2011/5 - 2013/4 Principal Supervisor	Matthew Buat (Completed), University of British Columbia Thesis/Project Title: Study of droplet evaporation in digital microfluidics Present Position: Master of Engineering Leadership (MEL), UBC
2011/5 - 2013/4 Principal Supervisor	Ryan Phillips (Completed), University of British Columbia Thesis/Project Title: Development of an experimental technique for the measurement of pore diameter and permeability of gas diffusion layer Present Position: Head of Testing and Diagnosis, Greenlight Innovation Corp
2010/5 - 2015/4 Principal Supervisor	Paul Barry (Completed) , University of British Columbia Thesis/Project Title: Development of a laminae-based flow microfluidic fuel cell Present Position: Project Engineer, Solaris MCI
2010/1 - 2013/4 Principal Supervisor	Samuel Yew (Completed), University of British Columbia Thesis/Project Title: Fuel cell performance optimization Present Position: Head of Testing and Diagnosis, Ballard Power Systems

Master's non-Thesis [n=1]

2018/1 - 2020/4	Grant Sonnenberg, University of British Columbia
Principal Supervisor	Thesis/Project Title: Development of a novel bio-printer for tissue engineering
	Present Position: Project engineer in training, Stantec

Master's Thesis [n=41]

2024/1 - 2026/1 Principal Supervisor	Ibraheem Elbadawi, University of Victoria Thesis/Project Title: Advancing Metal Oxide Gas Sensors through Machine Learning Algorithms for Improved Stability and Selectivity Present Position: MASc. University of Victoria
2024/1 - 2026/1 Principal Supervisor	Mohammad Hossein Saberi, University of Victoria Thesis/Project Title: Strategizing Humidity Mitigation for Enhanced Performance of Metal Oxide Gas Sensors Present Position: MASc, University of Victoria

2024/1 - 2026/1 Principal Supervisor	Tyler Hardy, University of Victoria Thesis/Project Title: Innovative On-Chip Encapsulation Platform for Targeted Drug Delivery to the Colon Present Position: MASc, University of Victoria
2023/1 - 2025/4 Principal Supervisor	Koorosh Abbaspour, University of Victoria Thesis/Project Title: Development of Electrochemical Sensors for Breath Analysis Present Position: PhD, University of Victoria
2022/1 - 2024/1 Principal Supervisor	Zahra Motamedi, University of Victoria Thesis/Project Title: Microfluidic device/nanomaterial development for exosome isolation Present Position: MASc, University of Victoria
2022/1 - 2024/1 Principal Supervisor	Mahsa Madadimasouleh, University of Victoria Thesis/Project Title: Microneedles for enhanced drug delivery Present Position: MASc, University of Victoria
2021/8 - 2023/8 Principal Supervisor	Madison Miller, University of Victoria Thesis/Project Title: Characterization of an Encapsulation Platform for pH-sensitive Delivery to the Colon Present Position: Quality Assurance Manager, Guidestar
2021/8 - 2023/8 Principal Supervisor	Arian Yeganegi, University of Victoria Thesis/Project Title: Molecularly Imprinted Polymers (MIP) Combined with Raman Spectroscopy for Selective Detection of ∆9-tetrahydrocannabinol (THC) Present Position: Textbook Sales Consultant, University of Victoria
2021/1 - 2022/11 Principal Supervisor	Hirad Mashouf, University of Victoria Thesis/Project Title: Development of a disposable and easy-to-fabricate PCR microfluidic device for DNA amplification Present Position: EIT, Introba
2020/12 - 2022/11 Principal Supervisor	Amin Heydari, University of Victoria Thesis/Project Title: Numerical and experimental investigation of microparticles manipulation using a developed two-stage acoustofluidics platform Present Position: EIT, Principle Capacity Engineering TLM
2020/5 - 2022/4 Co-Supervisor	Reza Zarghanishiraz, University of British Columbia Thesis/Project Title: Development of a ceramic based GC on-chip Present Position: PhD, UBC
2020/5 - 2022/4 Co-Supervisor	Andre Van der Berg, University of British Columbia Thesis/Project Title: Machine learning of data from GIS of water pipeline Present Position: Engineer, Knight Piesold
2020/5 - 2022/4 Principal Supervisor	Mohammadreza Aghel, University of Victoria Thesis/Project Title: A droplet-based microfluidic impedance flow cytometer for detection and quantification of microplastics in water Present Position: EIT, BC Hydro
2020/5 - 2022/4 Principal Supervisor	Peyman Azhdary, University of Victoria Thesis/Project Title: Development of molecularly imprinted polymer (MIP)-based microfluidic gas sensors for Tetrahydrocannabinol (THC) detection Present Position: Production engineer, Western Canoeing Manufacturing Co.
2020/5 - 2022/4 Co-Supervisor	Mohsen Sadeghi, University of British Columbia Thesis/Project Title: Development of artificial olfaction platform for detection of bacteria Present Position: PhD, UBC

2020/1 - 2021/12 Co-Supervisor	Mohammadamir Ghasemian Moghaddam, University of British Columbia Thesis/Project Title: Development of sensing elements for measuring H2S in a liquid phase Present Position: PhD, UBC
2019/9 - 2021/8 Principal Supervisor	Hamed Shieh, University of British Colombia Thesis/Project Title: Label-free electrochemical Aptasensor based on gold nanoparticles- modified screen-printed electrodes for detection of cytokines Present Position: PhD, UBCO
2019/9 - 2021/8 Principal Supervisor	Arash K. Jahromi, University of British Columbia Thesis/Project Title: Development of Aptamer-Based Graphene Field-Effect Transistors for Determination of Protein Biomarkers Present Position: PhD, McGill University
2019/9 - 2021/8 Principal Supervisor	Sara Ghaderahmadi, University of British Columbia Thesis/Project Title: Development of Room Temperature H2S Gas Sensors Using Flower- Like ZnO Nanorods Present Position: System test engineer, Ballard Power Systems
2019/9 - 2021/8 Principal Supervisor	Mahan Ghazi, University of British Columbia Thesis/Project Title: Feasibility assessment and development of knowledge, technology, and tools for monitoring natural gas odorants Present Position: Systems engineer, Ekona Power
2019/9 - 2021/8 Principal Supervisor	Emily Earl, University of British Columbia Thesis/Project Title: High-Density Biocompatible Hydrogels for In-Vivo Gastric Acid Relocation Present Position: Lab Operation Manager, University of Victoria
2019/1 - 2021/2 Principal Supervisor	Ali Davoodabadi Farahani, University of British Columbia Thesis/Project Title: Development of an in-situ detector for dissolved gases in liquid waste Present Position: PhD, UBC
2018/9 - 2020/8 Principal Supervisor	Hamed Tahmooressi, University of British Columbia Thesis/Project Title: Multiscale simulation and statistical analysis of nanoparticles size effect on nanofluids effective thermal conductivity Present Position: Sessional Instructor, Columbia College
2018/9 - 2020/8 Principal Supervisor	Adel Yavarinasab, University of British Columbia Thesis/Project Title: Development of impedance-transduced chemiresistors for highly selective electrochemical detection in aqueous media Present Position: PhD, UBC
2018/9 - 2021/2 Co-Supervisor	Mohamed Tarek Aly, University of British Columbia Thesis/Project Title: Microfluidic olfaction detector for outdoor applications : a pattern recognition approach Present Position: Data Annotation Engineer at Noze, Noze
2018/5 - 2020/4 Co-Supervisor	Pranav Ambhorkar, University of British Columbia Thesis/Project Title: Development of an electrospinning system integrated with stereolithographic 3D bioprinting Present Position: Design Engineer, European Space Agency
2018/1 - 2020/4 Co-Supervisor	Matthew Barriault, University of British Columbia Thesis/Project Title: Applications of artificial olfaction and machine learning for detection of volatile gas Present Position: Sofware Engineer, Prairie Robotics

2017/1 - 2020/4 Co-Supervisor	Pamela Ines R. Sanchez, University of British Columbia Thesis/Project Title: Optimization of electrochemical microfluidic biosensor design for point of care devices Present Position: PhD, UBC
2017/1 - 2019/12 Principal Supervisor	Erfan Taatizadeh, University of British Columbia Student Degree Start Date: 2012/9 Thesis/Project Title: Development of lab-on-a-chip acoustofluidic platform with a potential application in extracellular vesicles purification Project Description: Development of a detection technique for LOC devices for point of care Present Position: PhD, UBC
2016/9 - 2018/8 Principal Supervisor	Hossein Montazerian, University of British Columbia Thesis/Project Title: Development of in-fabric sensors for detection of wrinkles in composites Present Position: Research Associate, MIT
2016/5 - 2018/4 Principal Supervisor	Pouria Mehrabi, University of British Columbia Thesis/Project Title: Development of SnO2/PEO nanofiber gas sensor for THC detection Present Position: Product Development Engineer, RainStick
2016/1 - 2018/4 Principal Supervisor	Mahyar Mohaghegh Montazeri, University of British Columbia Thesis/Project Title: Development of microfluidic-based olfaction system for nuisance sewer gas monitoring Present Position: Adjunct Professor, UBC
2015/9 - 2017/8 Co-Supervisor	Reza Larami, University of British Columbia Thesis/Project Title: Wearable motion detection and monitoring devices Present Position: PhD, UBC
2014/9 - 2016/8 Co-Supervisor	Nusrat Urmi (Completed), University of British Columbia Thesis/Project Title: Antibody optimization for capturing <i>cryptosporidium</i> Present Position: PhD, UBC
2014/9 - 2016/8 Co-Supervisor	Sadegh Hassanpour (Completed), University of British Columbia Thesis/Project Title: Use of x-ray micro-tomography for simulating flow in GDL Present Position: PhD, UVic
2013/9 - 2015/8 Principal Supervisor	Ryan Phillips (Completed) , University of British Columbia Thesis/Project Title: Characterization of PEM fuel cells using EIS Present Position: Lead Test Engineer, Greenlight Innovation
2013/9 - 2015/8 Co-Supervisor	Daniel Yang (Completed), UC Berkeley Thesis/Project Title: Circulating tumor cell separation in microchannels Present Position: PhD, UC Berkeley
2011/9 - 2013/8 Co-Supervisor	Elaheh Aghaarabi (Completed) , University of British Columbia Thesis/Project Title: Decision making tool for water quality monitoring Present Position: Design Engineer, E-One Moli Energy Ltd
2011/9 - 2013/8 Principal Supervisor	Ovee Z. Chowdhury (Completed), University of British Columbia Thesis/Project Title: Deposition of biomolecules on DMF chips Present Position: PhD, UBC
2011/9 - 2013/8 Principal Supervisor	Siddiq H. Tahseen (Completed), University of British Columbia Thesis/Project Title: In situ measurement of water saturation in GDL of fuel cells Present Position: Chief Engineer, IMW Industries

2011/9 - 2013/8 Principal Supervisor	Tasrif Rahman (Completed), University of British Columbia Thesis/Project Title: Measurement the effectiveness of pathogen capture device Present Position: Mechanical Designer, InvenTech Ltd.
Doctorate [n=28]	
2023/9 - 2027/9 Principal Supervisor	Abbas Sabahi, University of Victoria Thesis/Project Title: A Sensitive Electrochemical Biosensor for Simultaneous Detection of Lung Cancer Biomarkers based on Carbon substrates and Metal-Polymer Hybrids Present Position: PhD, University of Victoria
2022/8 - 2026/8 Principal Supervisor	Kaveh Yazdani Motlagh, University of Victoria Thesis/Project Title: Optimization of Microfluidic Encapsulation of Bacteria for Probiotics and Biosensing Present Position: PhD, University of Victoria
2022/6 - 2026/6 Principal Supervisor	Mostafa Azimzadeh, University of Victoria Thesis/Project Title: VOC-based classification of bacterial infection on wound sites (co- supervised with Dr. Mohsen Akbari) Present Position: PhD, University of Victoria
2022/5 - 2026/5 Principal Supervisor	Shima Akar, University of Victoria Thesis/Project Title: Liposome-based encapsulation of pro-neurogenic small peptide ISX-9 Present Position: PhD, University of Victoria
2022/5 - 2026/5 Co-Supervisor	Farnoosh Kalantarnia, University of Victoria Thesis/Project Title: On-chip model of blood brain barrier (co-supervised with Dr. Stephanie Willerth) Present Position: PhD, University of Victoria
2022/1 - 2026/1 Principal Supervisor	Abbas Motalebizadeh, University of Victoria Thesis/Project Title: Low-cost kit for isolation and characterization of microplastics Present Position: PhD, University of Victoria
2020/5 - 2024/4 Co-Supervisor	Thomas Full, University of British Columbia Thesis/Project Title: Development of wireless self-powered sensor for composite fabrication default monitoring Present Position: PhD, UBC
2020/1 - 2024/12 Co-Supervisor	Hamed Hadayeghi, McGill University Thesis/Project Title: Micro-encapsulation using microfluidic devices Present Position: PhD, McGill University
2020/1 - 2024/12 Co-Supervisor	Mohammad Ramezannezhad, University of British Columbia Thesis/Project Title: On-chip Exosome isolation Present Position: PhD, UBC
2020/1 - 2024/12 Co-Supervisor	Jahanbakhsh Jahanzamin, UBC Thesis/Project Title: Development of nano-composite sensing layers for gas sensing Present Position: PhD, UBC
2019/9 - 2024/8 Co-Supervisor	Ali Habiboallahzade, University of British Columbia Thesis/Project Title: Hybrid geothermal systems Present Position: PhD, UBC
2019/9 - 2023/8 Principal Supervisor	Bahram Talebjedi, University of British Columbia Thesis/Project Title: Developing an acoustic-based microfluidics micro/nano scale particle separation and manipulation platform with application for extracellular vesicle isolation Present Position: PDF, TU Delft

2019/9 - 2024/8 Co-Supervisor	Samaneh Daviran, University of British Columbia Thesis/Project Title: Atomic layer deposition for metal oxide semiconductor sensor Present Position: PhD, UBC
2019/9 - 2024/8 Co-Supervisor	Soha Mohajeri, University of British Columbia Thesis/Project Title: Graphene-based flexible sensors for wearable applications Present Position: PhD, UBC
2018/5 - 2022/4 Principal Supervisor	Hamed Mirzaei, University of British Columbia Thesis/Project Title: Development of sensitive/selective microfluidic-based olfaction sensor for detection of hydrogen in hydrogen-enriched-natural gas mixture Present Position: PhD, UBC
2016/9 - 2020/8 Co-Supervisor	George S. Luka, University of British Columbia Thesis/Project Title: On-chip-based biosensors and point-of-care devices for label/PCR- free detection of Cryptosporidium Present Position: PDF, McGill
2016/9 - 2021/1 Principal Supervisor	Yousif Alcheikhhamdon, University of British Columbia Thesis/Project Title: Enhancement of acid gas removal in natural gap process Present Position: Lead process engineer, Worley, UBC
2016/5 - 2020/8 Principal Supervisor	Arash Dalili, University of British Columbia Thesis/Project Title: Development of a point-of-care lab on a chip platform for stem cell separation and sensing Present Position: Senior Research and Development Scientist, MEMS Vision
2016/1 - 2020/8 Co-Supervisor	Kabilan Sakthivel, University of British Columbia Thesis/Project Title: Development of LOC platform for co-calturing cells Present Position: PDF, Lund University
2016/1 - 2019/12 Principal Supervisor	Roya Samanipoor, University of British Columbia Thesis/Project Title: 4-D bio-printing of brain model Present Position: Scientist, Advanced Regenerative Manufacturing Institute (ARMI)
2014/9 - 2017/7 Principal Supervisor	Walid I. Mazyan, University of British Columbia Thesis/Project Title: Enhancement of LNG recovery and transport Present Position: Assistant Professor, American University of Sharjah
2013/9 - 2017/8 Co-Supervisor	Yunxi Li, University of British Columbia Thesis/Project Title: Development of membrane with least methanol crossover in MFC Present Position: PDF, UC Berkeley
2013/5 - 2017/11 Principal Supervisor	Mohammad Paknahad, University of British Columbia Student Degree Start Date: 2013/5 Thesis/Project Title: Development of miniaturized electronic nose Present Position: VP of Technology Development, Cannabix Technologies
2012/9 - 2016/8 Principal Supervisor	H. R. Nejad (Completed) , University of British Columbia Thesis/Project Title: Development of DMF platform for detection of microvesicles Present Position: Assistant Professor, Tufts University
2012/9 - 2016/8 Principal Supervisor	Ehsan Samiei (Completed) , University of British Columbia Thesis/Project Title: Development of label free biosensors Present Position: PhD, UofT
2011/9 - 2015/8 Principal Supervisor	Seyed M. R. Niya (Completed) , University of British Columbia Thesis/Project Title: Study of two-phase flow in fuel cell Present Position: Researcher, Stanford University

2011/9 - 2016/12	M. H. Banna (Completed), University of British Columbia
Principal Supervisor	Thesis/Project Title: Development of sensors for water quality measurement
	Present Position: Lead Engineer in water-quality monitoring, City of Kelowna

2010/9 - 2013/8Farzad Aminravan (Completed) , University of British ColumbiaCo-SupervisorThesis/Project Title: Evidential reasoning for water quality decision making
Present Position: Senior Engineer and Researcher, Wonderware PacWest

Post-doctorate [n=6]

2022/9 - 2023/3 Principal Supervisor	Sajjad Janfaza, University of Victoria Thesis/Project Title: Development of MIP for propofol detection Present Position: PDF, University of British Columbia
2021/5 - 2026/1 Principal Supervisor	Somayeh Fardindoost, University of Victoria Thesis/Project Title: Developing sensors for detection of analyte of interest Present Position: PDF, University of Victoria
2021/1 - 2022/12 Academic Advisor	Kaveh Moulaee, Universita degli Studi di Messina Thesis/Project Title: GFET sensors for THC detection Present Position: PDF, UBC
2020/9 - 2021/8 Principal Supervisor	Amir Mohammad Sattari, University of British Columbia Thesis/Project Title: Droplet splitting in microfluidics Present Position: PDF, UBC
2019/4 - 2021/4 Principal Supervisor	Sajjad Janfaza, University of British Columbia Thesis/Project Title: Development of microfluidic platforms for micro-encapsulation Present Position: PDF, University of British Columbia
2015/5 - 2015/10 Principal Supervisor	Seyed M. R. Niya (Completed), University of British Columbia Thesis/Project Title: Mathematical modelling of CPE in EIS model of fuel cell Present Position: Researcher, Stanford University

Research Associate [n=8]

2023/6 - 2023/9 Principal Supervisor	Adriaan Frencken, University of Victoria Thesis/Project Title: Chemistry related to gas sensing, microfluidic encapsulation, microplastic detection Present Position: Postdoctoral Fellow, University of Victoria
2023/6 - 2028/6 Principal Supervisor	Ashtyn Gibbs, University of Victoria Thesis/Project Title: Machine learning and AI for gas sensing applications Present Position: Lab Resource Manager, University of Victoria
2023/1 - 2028/1 Principal Supervisor	Jacob Stachowski, University of Victoria Thesis/Project Title: Engineering for gas sensing applications Present Position: Lab Technical Manager, University of Victoria
2022/1 - 2026/1 Principal Supervisor	Emily Earl, University of Victoria Thesis/Project Title: Engineering for Gas Sensing, Microfluidic Encapsulation, and Microparticle Detection Present Position: Lab Operation Manager, University of Victoria
2018/8 - 2023/7 Principal Supervisor	Nishat Tasnim, University of British Columbia Thesis/Project Title: Managing projects and the lab Present Position: Institutional Programs Officer, UBC
2016/7 - 2018/6 Principal Supervisor	Allen O'Brien, University of British Columbia Thesis/Project Title: Gas detection systems for different applications Present Position: Health Advisor, Alberta Health

2014/9 - 2016/5 Principal Supervisor	Ali Ahmadi (Completed), University of British Columbia Thesis/Project Title: Implementation of sweeping operator on DMF platform Present Position: Assistant Professor, University of Prince Edward Island
2013/9 - 2014/7 Principal Supervisor	Sina Jomeh (Completed), University of British Columbia Thesis/Project Title: Concentration of waterborne pathogen in microfluidics Present Position: Researcher, Lawrence Berkeley National Lab
Technician [n=2]	
2020/1 - 2020/12 Academic Advisor	Seyedehhamideh Razavi, University of Tehran Thesis/Project Title: Micro-encapsulation of probiotics Present Position: Technician, University of Alberta
2019/1 - 2021/3 Principal Supervisor	Adithya Ravishankara, University of British Columbia Thesis/Project Title: Prototype development for commercialization Present Position: Technology Manager, Noze

Staff Supervision

Staff Supervision

Number of Scientific and Technical Staff: 6 Number of Visiting Researchers: 1 Number of Highly Qualified Personnel in Research Training: 11 Number of Employees: 6 Number of Volunteers: 0

Event Administration

2023/6 - 2023/6	Host, The Canadian Academy of Engineering, Association, 2023/6 - 2023/6
2016/11 - 2017/4	Organizer and Chair, Biomed Conference, Conference, 2017/4 - 2017/4
2015/5 - 2016/7	Technical Chair, 2016 CSME International Congress, Conference, 2016/6 - 2016/7
2015/6 - 2015/7	Chair, ASME 2015 Power & Energy Conversion, Conference, ASME, 2015/7 - 2015/7 Chairing low-temperature fuel cell sessions
2015/2 - 2015/3	Organizer, School of Engineering Partners with Industry, Workshop, School of Engineering, 2015/3 - 2015/3 The School of Engineering (SOE) at the University of British Columbia (UBC) created an exciting showcase of cutting-edge research, industry partnership, and community engagement at the UBC Okanagan campus. This event provided a networking platform for researchers, industry leaders, and technical professionals, and fostered collaboration between academia and industry in the areas of health, environment, and transportation.
2014/8 - 2014/8	Organizer, ASME 12th International Conference on Nanochannels, Microchannels, and Minichannels, Conference, ASME, 2014/8 - 2014/8 Organizer of microfluidics track and sessions
2014/6 - 2014/7	Chair, ASME 2014 Internation Fuel Cell Science, Engineering & Technology, Conference, ASME, 2014/7 - 2014/7 Chairing low temperature fuel cell track and fuel cell modeling track

- 2014/5 2014/6 Chair, CSME International Congress, Conference, University of Toronto, 2014/6 2014/6 Chair of the committee selecting the best student paper award
- 2012/7 2012/7 Organizer, ASME 10th 2012 International Conference on Nanochannels, Microchannels, and Minichannels, Conference, ASME, 2012/7 2012/7 Organizing digital microfluidics track and session

Editorial Activities

2022/1 - 2027/1	Editorial Board, Scientific Reports, Journal
2018/1 - 2020/12	Editorial Board, Sensors, Journal
2017/9 - 2018/5	Guest Editor, Special issue on Microfluidic-Based Gas Detection to be published in Micromachines, Journal
2013/9 - 2017/9	Associate Editor, Journal of Heat Transfer Augmentation, Journal Assigning the papers to the reviewers and making final decisions
	Research Disciplines: Mechanical Engineering
	Areas of Research: Heat Transfer
	Fields of Application: Energy
2011/9 - 2015/9	Guest Editor, OPTOFL, Journal In charge of opto-microfluidics papers
	Research Disciplines: Mechanical Engineering
	Areas of Research: Micro and Nanoelectronics
	Fields of Application: Health System Management

Mentoring Activities

2010/9 Supervisor, University of British Columbia Number of Mentorees: 16 Supervising the 4-year capstone projects

Journal Review Activities

2013/9	Reviewer, Analytical Chemistry, ACS Publications Number of Works Reviewed / Refereed: 4
2013/9	Reviewer, Sensors and Actuators B, Elsevier Number of Works Reviewed / Refereed: 8
2012/9	Reviewer,Biomedical Microdevices,Springer Number of Works Reviewed / Refereed: 5
2012/9	Reviewer, Applied Energy, Elsevier Number of Works Reviewed / Refereed: 12
2011/9	Reviewer,Lab on a Chip,Royal Society of Chemistry Number of Works Reviewed / Refereed: 10
2010/9	Reviewer,Journal of Chemical Engineering,Elsevier Number of Works Reviewed / Refereed: 9

2010/9	Reviewer, Microfluidics and Nanofluidics, Springer Number of Works Reviewed / Refereed: 35
2009/9	Reviewer,Experiments in Fluids,Springer Number of Works Reviewed / Refereed: 12
2008/9	Reviewer, International Journal of Hydrogen Energy, Elsevier Number of Works Reviewed / Refereed: 20
2008/9	Reviewer, Journal of Power Sources, Elsevier Number of Works Reviewed / Refereed: 25
2004/9	Reviewer, Journal of Colloid Interface Science, Elsevier Number of Works Reviewed / Refereed: 15
2004/9	Reviewer, Colloids and Surfaces A, Elsevier Number of Works Reviewed / Refereed: 26
2004/9	Reviewer,Langmuir,ACS Publications Number of Works Reviewed / Refereed: 23

Conference Review Activities

2008/3 Reviewer, ASME International Conference on Fuel Cell Science, Engineering & Technology Conference, Open, ASME Number of Works Reviewed / Refereed: 27

Organizational Review Activities

2022/5 - 2024/5	Research oversight committee member, Genomic Solutions for Natural Resources and the Environment Research competition reviewer
2022/1 - 2022/7	Consultant, Brock University Development of the first engineering program (integrated engineering)
2022/2 - 2022/3	External reviewer, University of Waterloo External reviewer of the graduate programs of the department of mechatronics and mechanical engineering

International Collaboration Activities

2015/9 - 2020/11	Collaborator, United States of America I am collaborating and co-supervising a student with Dr. Kahdemhosseini at MIT/Harvard in the area of 4D bioprinting for organ printing
2017/9 - 2019/4	Collaborator, Bangladesh We have started our collaboration with Dr. Billah's team at Khulna University to conduct testing of our patented technology for water quality monitoring in Bangladesh
2017/5 - 2019/4	Collaborator, France I just started collaboration with Dr. Gardan's group at EPF Ecole d'ingénieurs in the area of additive manufacturing and have recently submitted a proposal to French Government related to characterization of heat exchanger developed by 3D printing process.
2014/9 - 2018/5	Collaborator, United Arab Emirates I am collaborating with Dr. Hussain Ahmed from American University of Sharjah (AUS) in the area of solid removal from natural gas using cyclones

Committee Memberships

2023/1 - 2024/12 Chair, Executive Leader of Canadian Society of Mechanical Engineering (CSME), Canadian Society of Mechanical Engineering (CSME) Past President 2021/1 - 2022/12 Chair, Executive leader of Canadian Society of Mechanical Engineering (CSME), Canadian Society of Mechanical Engineering (CSME) President 2018/5 - 2020/4 Committee Member, Executive leader of Canadian Society of Mechanical Engineering (CSME), Canadian Society of Mechanical Engineering (CSME) Senior Vice President in charge of membership 2014/5 - 2019/4 Committee Member, Best student paper award, Canadian Society of Mechanical Engineering I am the chair of the committee selecting the best student awards in CSME congress

Presentations

- (2024). Molecularly Imprinted Polymers in Artificial Olfaction: A Sensory Enhancement Approach. ICONN 2024, Australia Main Audience: Researcher Invited?: Yes, Keynote?: No
- (2023). Integrated sensors for application in environmental and clean technology. Clean Energy Research Centre (CERC) Seminar, Canada Main Audience: Researcher Invited?: Yes, Keynote?: No
- (2022). Breath sensing for personal health monitoring. UVic Translational Biomedical Engineering Seminar, Canada Main Audience: Researcher Invited?: Yes, Keynote?: No
- (2021). Smart sensors for monitoring volatile organic compounds (VOCs). EGBC 2021, Canada Main Audience: Researcher Invited?: Yes, Keynote?: Yes
- (2021). Smart sensors for health and safety monitoring. VI ASHRAE and EGBC, Canada Main Audience: Researcher Invited?: Yes, Keynote?: No
- (2020). Graphene-coated spandex sensors for composites health monitoring. IEEE Nano 2020, Austria Main Audience: Researcher Invited?: Yes, Keynote?: No
- (2017). Digital microfluidics: from sample preparation to sensing. 2nd Microfluidics Congress, Philadelphia, United States of America Main Audience: Researcher Invited?: Yes, Keynote?: No
- (2016). Development and characterization of sensitive/selective sensors on integrated lab-on-chip applications. University of Toronto, Toronto, Canada Main Audience: Researcher Invited?: Yes, Keynote?: No

- (2016). Development of a dielectrophoretic-based technique for rapid droplet mixing in digital microfluidics. Massachusetts Institute of Technology (MIT), Boston, United States of America Main Audience: Researcher Invited?: Yes, Keynote?: No
- (2012). Digital Microfluidics and its Potentials in Biomedical Applications. Stanford University, Palo Alto, United States of America Main Audience: Researcher Invited?: Yes, Keynote?: No
- (2012). Flow in Microstructures. University of California Berkeley, Berkeley, United States of America Main Audience: Researcher Invited?: Yes, Keynote?: No

Broadcast Interviews

2017/07/23 -UBC engineers invent 3D-printed device to monitor water quality, News Vancouver, Metro2017/07/23UBC researchers develop \$15 pot breathalyzer- Device can detect level of pot and alcohol

2016/04/20 impairment, The Early Edition, CBC News

Publications

Journal Articles

- Akar, S*; Fardindoost, S*; Hoorfar, M. (2024). High throughput microfluidics-based synthesis of PEGylated liposomes for precise size control and efficient drug encapsulation. Colloids and Surfaces B: Biointerfaces. 238: 113926. Published, Elsevier, Refereed?: Yes
- Aghel, M*; Fardindoost, S*; Tasnim, N*; Hoorfar, M. (2024). A Droplet-Based Microfluidic Impedance Flow Cytometer for Detection of Micropollutants in Water. Environments. 11: 96. Published, MDPI, Refereed?: Yes
- Yazdani, K*; Fardindoost, S*; Frencken, A*; Hoorfar, M. (2024). Multi-objective optimization of expansioncontraction micromixer using response surface methodology: A comprehensive study. International Journal of Heat and Mass Transfer. 227: 125570. Published, Elsevier, Refereed?: Yes
- Aly, M*; Tasnim, N*; Najjaran, H; Fardindoost, S*; Hoorfar, M. (2024). Pattern recognition system for rapid detection of gases using microfluidic olfaction detector: A case study using methane and ethane. Sensors and Actuators B: Chemical. 403: 135201. Published, Elsevier, Refereed?: Yes
- Alaghmandfard, A*; Fardindoost, S*; Frencken, A*; Hoorfar, M. (2024). The next generation of hydrogen gas sensors based on transition metal dichalcogenide-metal oxide semiconductor hybrid structures. Ceramics International. In Press, Elsevier, Refereed?: Yes

- Azimzadeh, M*; Askari, E; Khashayar, P; Balgouri, A; Mousazadeh, M; Hoorfar, M; Akbari, M. (2023). 3D Bioprinting for skin models: an overview of recent approaches. International Journal of Bioprinting. Submitted, Refereed?: Yes
- Mashouf, H*; Talebjedi, B*; Tasnim, N*; Tan, M; Alousi, S; Pakpour, S; Hoorfar, M. (2023). Development of a disposable and easy-to-fabricate microfluidic PCR device for DNA amplification. Chemical Engineering and Processing-Process Intensification. 189: 109394. Published, Refereed?: Yes
- Yeganegi, A*; Fardindoost, S*; Tasnim, N*; Hoorfar, M. (2023). Molecularly imprinted polymers (MIP) combined with Raman spectroscopy for selective Detection of ∆9-tetrahydrocannabinol (THC). Talanta. 1278: 341749. Published, Refereed?: Yes
- Motalebizadeh, A*; Fardindoost, S*; Jungwirth, J*; Tasnim, N*; Hoorfar, M. (2023). Microplastic in-situ detection based on a portable triboelectric microfluidic sensor. Analytical Methods. 15(36): 4718-4727. Published, Refereed?: Yes
- Heydari, M*; Talebjedi, B*; Tasnim, N*; Hoorfar, M. (2023). Numerical and experimental investigation of high-resolution manipulation of microparticles using a developed two-stage acoustofluidic platform. Chemical Engineering and Processing-Process Intensification. 189: 109384. Published, Refereed?: Yes
- Azhdary, P*; Janfaza, S*; Fardindoost, S*; Tasnim, N*; Hoorfar, M. (2023). Highly selective molecularly imprinted polymer nanoparticles (MIP NPs)-based microfluidic gas sensor for tetrahydrocannabinol (THC) detection. Analytica Chimica Acta. 1278: 341749. Published, Refereed?: Yes
- Pakpour, S; Vojnits, K; Alousi, S; Khalid, M; Fowler, J; Wang, J; Tan, A; Lam, M; Zhao, M; Calderon, E; Luka, G*; Hoorfar, M; Kazemian, N; Isazadeh, S; Ashkarran, A; Runstadler, J; Mahmoudi, M. (2023). Magnetic levitation system isolates and purifies airborne viruses. ACS Nano. 17: 13393–13407. Published, Refereed?: Yes
- Ghazi, M*; Tasnim, N*; Hoorfar, M. (2022). Selective monitoring of natural gas sulphur-based odorant mixture of t-butyl mercaptan and methyl ethyl sulphide using an array of microfluidic gas sensors. Journal of Hazardous Materials. 438: 129548.
 Published, Refereed?: Yes
- Ghazi, M*; Janfaza, S*; Tahmooressi, H*; Tasnim, N*; Hoorfar, M. (2022). Selective detection of VOCs using microfluidic gas sensor with embedded cylindrical microfeatures coated with graphene oxide. Journal of Hazardous Materials. 424: 127566. Published, Refereed?: Yes
- Montazerian, H; Davoodi, E; Baidya, A; Badv, M; Haghniaz, R; Dalili, A*; Milani, A; Hoorfar, M; Annabi, N; Khademhosseini, A; Weiss, P. (2022). Bio-macromolecular design roadmap towards tough bioadhesives. Chemical Society Reviews. 51: 9127-9173. Published, Refereed?: Yes

- Luka, G*; Najjaran, H; Hoorfar, M. (2022). On-chip-based electrochemical biosensor for the sensitive and label-free detection of Cryptosporidium. Scientific Reports. 12: 6957.
 Published, Refereed?: Yes
- Talebjedi, B*; Heydari, M*; Taatizadeh, E*; Tasnim, N*; Li, I; Hoorfar, M. (2022). Neural networkbased optimization of an acousto microfluidic system for submicron bioparticle separation. Frontiers in Bioengineering and Biotechnology. 10: 878398.
 Published, Refereed?: Yes
- Abedini-Nassab, R; Wirfel, J; Talebjedi, B*; Tasnim, N*; Hoorfar, M. (2022). Quantifying the dielectrophoretic force on colloidal particles in microfluidic devices. Microfluidics and Nanofluidics. 26: 38. Published, Refereed?: Yes
- Farahani, A*; Hunter, J*; McIntosh, G*; Ravishankara, A*; Earl, E*; Janfaza, S*; Tasnim, N*; Kadota, P; Hoorfar, M. (2022). Development of an in-situ detector for classification and regression of dissolved gases in liquid waste with application to wastewater monitoring. Sensors and Actuators B: Chemical. 367: 132027. Published, Refereed?: Yes
- Samanipour, R*; Tahmooressi, H*; Nejad, H; Hirano, M; Shin, S; Hoorfar, M. (2022). A review on 3D printing functional brain model. Biomicrofluidics. 16: 011501.
 Published, Refereed?: Yes
- Jahromi, A*; Shieh, H*; Low, K; Tasnim, N*; Najjaran, H; Hoorfar, M. (2022). Experimental comparison of direct and indirect aptamer-based biochemical functionalization of electrolyte-gated graphene field-effect transistors for biosensing applications. Analytica Chimica Acta. 1222: 340177. Published, Refereed?: Yes
- Mirzaei, H*; Ramezankhani, M; Earl, E*; Tasnim, N*; Milani, A; Hoorfar, M. (2022). Investigation of a sparse autoencoder-based feature transfer learning framework for hydrogen monitoring using microfluidic olfaction detectors. Sensors. 22: 7696.
 Published, Refereed?: Yes
- Taatizadeh, E*; Dalili, A*; Tahmooressi, H*; Tasnim, N*; Li, I; Hoorfar, M. (2022). Nano-scale particle separation with tilted standing surface acoustic wave: experimental and numerical approaches. Particle & Particle Systems Characterization. 2200057: 39. Published, Refereed?: Yes
- Talebjedi, B*; Mehrizi, A; Mohseni, S; Tasnim, N*; Hoorfar, M. (2022). Machine learning-aided microdroplets breakup characteristic prediction in flow-focusing microdevices by incorporating variations of cross-flow tilt angles. Langmuir. 38: 10465–10477. Published, Refereed?: Yes
- Pourmadadi, M; Dinani, H; Tabar, F; Khassi, K; Janfaza, S*; Tasnim, N*; Hoorfar, M. (2022). Properties and applications of graphene and its derivatives in biosensors for cancer detection: a comprehensive review. Biosensors. 12: 269.
 Published, Refereed?: Yes

- Luka, G*; Samiei, E*; Tasnim, N*; Dalili, A*; Najjaran, H; Hoorfar, M. (2022). Comprehensive review of conventional and state-of-the-art detection methods of Cryptosporidium. Journal of Hazardous Materials. 421: 126714. Published, Refereed?: Yes
- Talebjedi, B*; Tasnim, N*; Hoorfar, M; Mastromonaco, GF; De Almeida Monteiro Melo Ferraz, M. (2021). Exploiting microfluidics for extracellular vesicle isolation and characterization: Potential use for standardized embryo quality assessment. Frontiers in Veterinary Science. 7: 1139-1150. Published, Refereed?: Yes
- Ghazi, M*; Janfaza, S*; Tahmooressi, H*; Ravishankara, A*; Earl, E*; Tasnim, N*; Hoorfar, M. (2021). Enhanced selectivity of microfluidic gas sensors by modifying microchannel geometry and surface chemistry with graphene quantum dots. Sensors and Actuators B: Chemical. 342: 130050-130059. Published, Refereed?: Yes
- Ghaderahmadi, S*; Kamkar, M; Tasnim, N*; Arjmand, M; Hoorfar, M. (2021). A review of low-temperature H2S gas sensors: fabrication and mechanism. New Journal of Chemistry. 45: 17727-17752. Published, Refereed?: Yes
- Yavarinasab, A*; Janfaza, S*; Tahmooressi, H*; Ghazi, M*; Tasnim, N*; Hoorfar, M. (2021). A selective polypyrrole-based sub-ppm impedimetric sensor for the detection of dissolved hydrogen sulfide and ammonia in a mixture. Journal of Hazardous Materials. 416: 125892.
 Published, Refereed?: Yes
- Dalili, A*; Montazerian, H*; Sakthivel, K*; Tasnim, N*; Hoorfar, M. (2021). Dielectrophoretic manipulation of particles on a microfluidics platform with planar tilted electrodes. Sensors and Actuators B: Chemical. 329: 129204- 129212. Published, Refereed?: Yes
- Talebjedi, B*; Earl, E*; Hoorfar, M. (2021). Robust design of electroosmosis driven self-circulating micromixer for biological applications. International Journal of Biomedical and Biological Engineering. 15(5): 50-53.
 Published, Refereed?: Yes
- Razavi, S*; Janfaza, S*; Tasnim, N*; Gibson, D; Hoorfar, M. (2021). Microencapsulating polymers for probiotics delivery systems: Preparation, characterization, and applications. Food Hydrocolloids. 120: 106882.
 Published, Refereed?: Yes
- Taatizadeh, E*; Dalili, A*; Rellstab-Sánchez, PI*; Tahmooressi, H*; Ravishankara, A*; Tasnim, N*; Najjaran, H; Li, ITS; Hoorfar, M. (2021). Micron-sized particle separation with standing surface acoustic wave—experimental and numerical approaches. Ultrasonics Sonochemistry. 76: 105651.
 Published, Refereed?: Yes
- Sattari, A*, Tasnim, N*, Hanafizadeh, P, Hoorfar, M. (2021). Numerical study of double emulsion droplet generation in a dual-coaxial microfluidic device using response surface methodology. Chemical Engineering and Processing-Process Intensification. 162: 108330-108343. Published, Refereed?: Yes

- Sattari, A*; Janfaza, S*; Keshtiban, M; Tasnim, N*; Hanafizadeh, P; Hoorfar, M. (2021). Microfluidic on-chip production of alginate hydrogels using double coflow geometry. ACS omega. 6: 25964–25971. Published, Refereed?: Yes
- Azimzadeh, M*; Khashayar, P; Amereh, M; Tasnim, N*; Hoorfar, M; Akbari, M. (2021). Microfluidic-based oxygen (O2) sensors for on-chip monitoring of cell, tissue and organ metabolism. Biosensors. 12: 6. Published, Referenced2: Yes
 - Refereed?: Yes
- 38. Dalili, A* and Hoorfar, M. (2021). Sheath-assisted versus sheathless dielectrophoretic particle separation. Electrophoresis. 42: 1570–1577.
 Published, Refereed?: Yes
- Barriault, M*; Alexander, I*; Tasnim, N*; O'Brien, A*; Najjaran, H; Hoorfar, M. (2021). Classification and regression of binary hydrocarbon mixtures using single metal oxide semiconductor sensor with application to natural gas detection. Sensors and Actuators B: Chemical. 326: 129012-129019. Published, Refereed?: Yes
- Dixit, K*; Fardindoost, S*; Ravishankara, A*; Tasnim, N*; Mina Hoorfar. (2021). Exhaled breath analysis for diabetes diagnosis and monitoring: relevance, challenges and possibilities. Biosensors. 11: 476. Published, Refereed?: Yes
- Luka, G*; Nowak, E; Toyata, Q; Tasnim, N*; Najjaran, H; Hoorfar, M. (2021). Portable on-chip colorimetric biosensing platform integrated with a smartphone for label/PCR-free detection of Cryptosporidium RNA. Scientific Reports. 11: 23192. Published, Refereed?: Yes
- Razavi, S*; Janfaza, S*; Tasnim, N*; Gibson, D; Hoorfar, M. (2021). Nanomaterial-based encapsulation for controlled gastrointestinal delivery of viable probiotic bacteria. Nanoscale Advances. 3: 2699-2709. Published, Refereed?: Yes
- Talebjedi, B*, Ghazi, M*, Tasnim, N*, Janfaza, S*, Hoorfar, M. (2021). Performance optimization of a novel passive T-shaped micromixer with deformable baffles. Chemical Engineering and Processing-Process Intensification. 163: 108369- 108376.
 Published, Refereed?: Yes
- Yavarinasab, A*; Abedini, M; Tahmooressi, H*; Janfaza, S*; Tasnim, N*; Hoorfar, M. (2021).
 Potentiodynamic electrochemical impedance spectroscopy of polyaniline-modified pencil graphite electrodes for selective detection of biochemical trace elements. Polymers. 14: 31.
 Published,
 Refereed?: Yes
- Sattari, A*; Tasnim, N*; Hanafizadeh, P; Hoorfar, M. (2021). Motion and deformation of migrating compound droplets in shear-thinning fluids in a microcapillary tube. Physics of Fluids. 33(5): 053106-05320. Published, Refereed?: Yes
- Tahmooressi, H*, Kasaeian, A, Yavarinasab, A*, Tarokh, A, Ghazi, M*, Hoorfar, M. (2021). Numerical simulation of nanoparticles size/aspect ratio effect on thermal conductivity of nanofluids using lattice Boltzmann method. International Communications in Heat and Mass Transfer. 120: 105033-105041. Published, Refereed?: Yes

- 47. Davoodi, E; Montazerian, H*; Esmaeilizadeh, R; Darabi, ACh; Rashidi, A; Kadkhodapour, J; Jahed, H; Hoorfar, M; Milani, AS; Weiss, PS; Khademhosseini, A; Toyserkani, E. (2021). Additively manufactured gradient porous Ti–6AI–4V hip replacement implants embedded with cell-laden gelatin methacryloyl hydrogels. ACS Applied Materials & Interfaces. 13(19): 22110-22123. Published, Refereed?: Yes
- Gaffney, AN; Duprez, NV; Louthan, KJ; Borders, B; Gasque, J; Siegfried, A; Stanford, TG; Roberts, KL; Alcheikhhamdona, Y*; Hoorfar, M; Chen, B; Majumdar, S; Murnen, H. (2021). Ethylene production using oxidative dehydrogenation: effects of membrane-based separation technology on process safety & economics. Catalysis Today. 371: 11-28. Published, Refereed?: Yes
- 49. Talebjedi, B*; Sattari, A*; Sihorwala, AZ; Hoorfar, M. (2021). Geometrical based unequal droplet splitting using microfluidic Y-junction. International Journal of Biomedical and Biological Engineering. 15(5): 177-181.
 Published, Refereed?: Yes
- Sakthivel, K*; Kumar, H; Mohamed, M; Talebjedi, B*; Shim, J; Najjaran, H; Hoorfar, M; Kim, K. (2020). High throughput screening of cell mechanical response using a stretchable 3D cellular microarray platform. Small. 16: 2000941-2000949. Published, Refereed?: Yes
- Samanipour, R*; Wang, T; Werb, M; Hassannezhad, H; Rangel, J; Hoorfar, M; Hasan, A; Lee, C; Shin, S. (2020). Ferritin nanocage conjugated hybrid hydrogel for tissue engineering and drug delivery applications. ACS Biomaterials Science & Engineering. 6: 277–287. Published, Refereed?: Yes
- Mirzaei, H*; O'Brien, A*; Tasnim, N*; Ravishankara, A*; Tahmooressi, H*; Hoorfar, M. (2020). Topical review on monitoring tetrahydrocannabinol in breath. Journal of Breath Research. 14: 034002-034006. Published, Refereed?: Yes, Open Access?: No
- Mehrabi, P*; Hui, J*; Janfaza, S*; O'Brien, A*; Tasnim, N*, Najjaran, H; Hoorfar, M. (2020). Fabrication of SnO2 composite nanofiber-based gas sensor using the electrospinning method for tetrahydrocannabinol (THC) detection. Micromachines. 11: 57-63. Published, Refereed?: Yes
- Yavarinasab, A*; Janfaza, S*; Tasnim, N*; Tahmooressi, H*; Dalili, A*; Hoorfar, M. (2020). Graphene/poly (methyl methacrylate) electrochemical impedance-transduced chemiresistor for detection of volatile organic compounds in aqueous medium. Analytica Chimica Acta. 1109: 27-36. Published, Refereed?: Yes
- Dalili, A*; Taatizadeh, E*; Tahmooressi, H*; Tasnim, N*; Rellstab-Sánchez, P*; Shaunessy, M*; Najjaran, H; Hoorfar, M. (2020). Parametric study on the geometrical parameters of a lab-on-a-chip platform with tilted planar electrodes for continuous dielectrophoretic manipulation of microparticles. Scientific Reports. 10: 11718-11723. Published, Refereed?: Yes

- Sattari, A*; Hanafizadeh, P; Hoorfar, M. (2020). Multiphase flow in microfluidics: From droplets and bubbles to the encapsulated structures. Advances in Colloid and Interface Science. 282: 102208-102218. Published, Refereed?: Yes
- Davoodi, E; Zhianmanesh, M; Montazerian, H*; Milani, A; Hoorfar, M. (2020). Nano-porous anodic alumina: fundamentals and applications in tissue engineering. Journal of Materials Science: Materials in Medicine. 31: 1-16. Published,

Refereed?: Yes

- Mehrabi, P*; Hui, J*; Janfaza, S*; O'Brien, A*; Tasnim, N*; Najjaran, H; Hoorfar, M. (2020). Fabrication of SnO2 composite nanofiber-based gas sensor using the electrospinning method for tetrahydrocannabinol (THC) detection. Micromachines. 11: 190-198. Published, Refereed?: Yes, Open Access?: Yes
- Mazyan, W*; Ahmadi, A*; Ahmed, H; Hoorfar, M. (2020). Increasing the COP of a refrigeration cycle in natural gas liquefaction process using refrigerant blends of Propane-NH3, Propane-SO2 and Propane-CO2. Heliyon. 6: e04750-e04758. Published, Refereed?: Yes
- Davoodi, E; Montazerian, H*; Haghniaz, R; Rashidi, A; Ahadian, S; Sheikhi, A; Chen, J; Khademhosseini, A; Milani, A; Hoorfar, M; Toyserkani, E. (2020). 3D-printed ultra-robust surface-doped porous silicone sensors for wearable biomonitoring. ACS Nano. 14: 1520–1532. Published, Refereed?: Yes
- Tahmooressi, H*, Kasaeian, A; Tarokh, A; Rezaei, R; Hoorfar, M. (2020). Numerical simulation of aggregation effect on nanofluids thermal conductivity using the lattice Boltzmann method. International Communications in Heat and Mass Transfer. 110: 104408-104424. Published, Refereed?: Yes
- Dalili, A*; Samiei, E*; Hoorfar, M. (2019). A review of sorting, separation and isolation of cells and microbeads for biomedical applications: microfluidic approaches. Analyst. 144: 87-113. Published, Refereed?: Yes
- Janfaza, S*; Kim, E*; O'Brien, A*; Najjaran, H; Nikkhah, M; Alizadeh, T; Hoorfar, M. (2019). A nanostructured microfluidic artificial olfaction for organic vapors recognition. Scientific Reports. 9: 1-8. Published, Referend?: Yes

Refereed?: Yes

- Montazerian, H*; Mohamed, M; Montazeri, M*; Kheiri, S; Milani, A; Kim, K; Hoorfar, M. (2019). Permeability and mechanical properties of gradient porous PDMS scaffolds fabricated by 3D-printed sacrificial templates designed with minimal surfaces. Acta Biomaterialia. 96: 149-160. Published, Refereed?: Yes
- Montazerian, H*; Dalili, A*; Milani, A; Hoorfar, M. (2019). Piezoresistive sensing in chopped carbon fiber embedded PDMS yarns. Composites Part B: Engineering. 165: 648-658. Published, Refereed?: Yes

- Montazerian, H*; Rashidi, A; Hoorfar, M; Milani, A. (2019). A frameless picture frame test with embedded sensor: mitigation of imperfections in shear characterization of woven fabrics. Composite Structures. 211: 112-124. Published, Refereed?: Yes
- Chen, B; Meng, Z; Ge, H; Alcheikhhamdon, Y*; Hoorfar, M; Liu, L; Yang, T; Fang, X. (2019). Optimization of residual oil hydrocrackers: integration of pump-free ebullated-bed process with membrane-aided gas recovery system. Energy Fuels. 33: 2584–2597.
 Published, Refereed?: Yes
- Montazeri, M*; O'Brien, A*; Hoorfar, M. (2019). Understanding microfluidic-based gas detectors: a numerical model to investigate fundamental sensor operation, influencing phenomena and optimum geometries. Sensors and Actuators B: Chemical,. 300: 126904-126910. Published, Refereed?: Yes
- Li, X*; Corbett, A; Taatizadeh, E*; Tasnim, N*; Little, J; Garnis, C; Daugaard, M; Guns, E; Hoorfar, M; Li, I. (2019). Challenges and opportunities in exosome research—Perspectives from biology, engineering, and cancer therapy. APL Bioengineering. 3(1): 011503-011511.
 Published, Refereed?: Yes
- Y. Alcheikhhamdon, Y*; Pinnau, I; Chen, B; Hoorfar, M. (2019). Propylene-propane separation using zeolitic-imidazolate framework (ZIF-8) membranes: process techno-commercial evaluation. Journal of Membrane Science. 591: 117252-117259. Published, Refereed?: Yes
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Intellectual Property

Patents

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- Apparatus, Systems, and Methods for Hydrocarbon Gas Detection and Differentiation. United States of America. US20230228644. 2021/08/13.
 Patent Status: Granted/Issued Inventors: Hoorfar M, Najjaran H, O'brien A*, Tasnim N*, Aly M*, Barriault M*, Ravishankara A*, Alexander I*, Earl E*, Ng G*
- Fabrication and Use of Flexible Porous Sensor with Adjustable Sensitivity and Selectivity. United States of America. 2861571. 2019/06/14.
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- Apparatus for volatile organic compound (VOC) detection. United States of America. 15/800,679. 2017/11/01.
 Patent Status: Pending Inventors: Hoorfar M, Paknahad M*, Ahmadi A* My contribution is 45% which is the majority among the inventors.

 Apparatuses for determining whether a substance is carried in a fluid. United States of America. 9,470,681. 2016/10/18. Patent Status: Granted/Issued Year Issued: 2016 Inventors: D.J. Roberts, M. Hoorfar, S. Jomeh*, R. Das My contribution is 35% which is the majority among the inventors.

Licenses

- Apparatus for volatile organic compound (VOC) detection Granted Date Issued: 2019/9 Filing Date: 2017/10/05 Cannabix Technologies Inc. has licensed this IP in the application domain of breath analyzing
- Apparatuses for determining whether a substance is carried in a fluid Granted Date Issued: 2018/7 Filing Date: 2017/04/12 Smart Waters licences this IP in the application domain of waterborne pathogen detection

Disclosures

- An integrated dual sided uniaxial cell stretcher and a stretchable cell microarray platform for real-time microscope imaging and high-throughput screening of 2D/3D cell mechanoresponse Disclosed Filing Date: 2019/10/11
- Development of a lab-on-a-chip device for the microencapsulation of probiotics for biopharmaceutical applications Disclosed Filing Date: 2019/09/07
- Highly-specific exosome isolation and characterization platform Disclosed Filing Date: 2019/07/17
- 3D-printing based fabrication method to develop multifunctional porous scaffolds Protected Filing Date: 2019/05/17
- Real-time benchtop, handheld and continuous flow natural gas detectors for field applications Disclosed
 Date Issued: 2021/10