Medical Physics Summer Student Symposium 2021

8:50 – 9:00	*Zoom Meeting Open to Guests & Participants.*	
9:00 – 9:10	Dr. Jino Distasio *UofW VP, Research & Innovation*	Welcome Address
9:10 – 9:25	Maria Fernanda Sandoval Aranda	*Measuring bigger cells with MRI*
9:25 – 9:40	Spencer Christie	*A Quantitative Analysis of the Impact of 3D-printed Phantom Shells in Breast Microwave Sensing*
9:40 – 9:55	Maxina Sheft	*Axon Diameter Inferences in the Human Brain Using Oscillating Gradient Spin Echo Sequences*
9:55 – 10:10	Sakshi Goyal	*Simulation and Analysis of 2 point-like scatterers in portable Breast Microwave Sensing (BMS) System*
10:10 - 10:20	*Coffee Break*	
10:20 - 10:35	Ashley King	*Measuring Garlic Stem ROI Using OGSE*
10:35 - 10:50	Sophia Krak	*Slapdash and the DREADD Effect*
10:50 - 11:05	Jordan Krenkevich	*Development of a Free-Space Material Characterization Device for Breast Microwave Phantoms*
11:05 – 11:20	Zack Louttit	*Using Machine Learning to Locate Copper Rods within a Portable Microwave Detection Device*
11:20 - 11:30	*Coffee Break*	
11:30 – 11:45	Madison Chisholm	*Measuring axon diameters in mice using OGSE*
11:45 - 12:15	Tasnim Rahman	*Development of a Robust and Quantitative Method Used for the Evaluation of Image Resolution in Breast Microwave Sensing*
12:15 - 12:45	*Prof. Milica Popcović*	*Low-power microwave breast screening: from simulations to clinical trials*
12:45 – 13:00	*Final Judging: Break-out Room* *****Guests & Participants are welcome to remain on Zoom during this time to virtually 'mix & mingle'.***	
13:00 – 13:15	*Prizes Awarded and Adjournment.*	

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Prof. Milica Popović

Abstract: Breast cancer is one of the most feared health issues for women today. The goal of the research presented in this talk, conducted at McGill University in Montreal, Canada, is to develop a lowpower RF wearable device, which can screen breast tissues monthly. With such frequent monitoring, it may be possible to detect potentially harmful tissue changes, i.e., early-stage tumors. The method relies on the reported inherent differences (in the electromagnetic sense) between the tumorous and healthy tissues at microwave (RF) frequencies. Since the underlying physical principle of this approach differs from those of the currently used methods in medical practice (X-ray mammography, MRI, ultrasound), its aim is to complement these techniques by compensating for their deficiencies. We will discuss the exciting potential of this promising new technique and the challenges of its practical implementation.

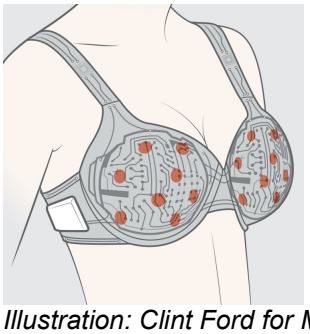

Illustration: Clint Ford for McGill University, Montreal, Canada.

Bio: Prof. Milica Popović received her M.Eng. (EE, 1994) and PhD (EE, 2001) at Northwestern University, Evanston, Illinois, USA. Since 2001, she has been with the Department of Electrical and Computer Engineering at McGill University, where she currently holds associate professorship. She teaches courses on electromagnetic fields and waves, and antennas and propagation. In 2020, she received Samuel and Ida Fromson Outstanding Teaching Award in Engineering. Her research revolves, in large part, around biomedical applications of electromagnetic theory. Prof. Popović is a Fellow of the World Innovation Foundation, a Senior Member of the IEEE and a member of the Professional Engineers of Ontario. For the IEEE Montreal Chapter, she has served as the as the Chair of IEEE Women in Engineering (WIE) and is presently the Chapter Chair for IEEE Engineering of Medicine and Biology Society (EMBS). In addition to her membership on the technical program committee of IEEE Microwave Theory and Techniques MTT-28 Biological Effects and Medical Applications, she serves as an Associate Editor for the IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology (IEEE J-ERM) and has served for many years on the Education Committee of IEEE Antennas and Propagation Society (AP-S).