

Lab-on-a-Printer Platform Technology for Next Generation 3D Bioprinting

A Seminar of the IEEE WA joint EDS/SSCS/IPS Chapter

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**Venue: Billings Room 3.04, 3rd floor. Electrical & Electronic Engineering Building
University of Western Australia, Crawley**

This seminar is open to the public and admission is free to all IEEE members and non-members

Abstract:

Applications of 3D printing are steadily growing and resulting in a significant practical impact in many domains. In medicine, drug development, and fundamental biology, 3D bioprinting is building on rapid advancements in tissue engineering and rapidly gaining traction including adoption by the largest biotechnology and drug companies in the world. In order to mimic the complex heterogeneity and optimized micro- nano-structure of human tissue, we are developing a novel bioprinting paradigm called Lab-on-a-Printer (LOP). The microfluidic enabled LOP concept integrates direct liquid manipulation and control directly with inkjet, filament or other deposition technology and allows for real-time programmability of bioink composition and the ability to multiplex multiple material inputs into one output dispenser. In this talk, Dr. Walus aims to provide a high-level overview of 3D printing applications in medicine, drug development, and fundamental biology. We will review the Lab-on-a-Printer concept and demonstrate several microfabricated printhead devices that implement LOP technology in practise as well as examples of the application of LOP 3D printing systems in these domains.

Biography:

Dr. Konrad Walus (ECE, UBC) received a B.A.Sc. in electrical engineering from the University of Windsor in 2001 and a Ph.D. degree in electrical engineering from the University of Calgary in 2005. He is presently an Associate Professor in the Department of Electrical and Computer Engineering at the University of British Columbia in Vancouver, Canada. Dr. Walus has broad research experience working in microsystems and nanotechnology including over 100 publications in international journals and conferences, books, and workshops on these topics. Dr. Walus was awarded the 2006 Distinguished Dissertation Award from the Canadian Association of Graduate Studies, the 2004 Alberta Science and Technology Leaders of Tomorrow Award, as well as several best paper awards. He co-founded the Microsystems and Nanotechnology (MiNa) group at UBC, one of Canada's leading clusters in this area and co-developed the Nanotechnology and Microsystems Undergraduate Program in ECE at UBC. In 2013 he co-founded Aspect Biosystems, an awarded winning and internationally recognized biotechnology company commercializing 3D bioprinting and tissue engineering technology.

