IBES Invited Talk 3

Tools for quantitative measurement of molecular, cellular and tissue parameters for biological applications

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The successful collaboration between different research groups of the Faculty of Information Technology and Bionics at PPKE has resulted in new microfabricated devices for a wide range of biological applications. The separation of newly synthetized protein complexes in microfluidic flow and downstream spectroscopy requires precise device design and flow control for successful measurements. Results on quantitative measurements of the division of cells include new device designs for capturing and imaging single yeast cells for continuous monitoring and parameter extraction. Skin-on-a-chip devices have been developed for the continuous measurement of transdermal absorption of different compounds in both animal skin models and human tissue substituent models. For the above devices the microfabrication possibilities from SU-8 based lithography to 3D printing and CNC machining will be summarized.

Bio:

Kristóf Iván obtained his MSc in bio-engineering and MA in engineer-teaching from the Technical University of Budapest (Hungary), in 2002 and 2004, respectively. He obtained his PhD in info-bionics from the Faculty of Information Technology at Pázmány Péter Catholic University (PPKE). He has been a visiting researcher at the University of Minnesota, MN and University of California, Berkeley in 2006 and 2012, respectively. He has served as the dean of the Faculty of Information Technology and Bionics, PPKE, between 2016 and 2022. His research area focuses on the one hand on biomicrofluidics, the miniaturization of biomedical testing and diagnostics; and on the other hand on brain-computer interfaces for improving rehabilitation and inclusion possibilities for disabled people.