2ND INTERNATIONAL MICROFLUIDICS CONGRESS

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Gabriel Leen

PolyPico, Ireland

The development of a pico litre sample delivery system

There are various methods based on acoustics used to generate microdrops. High level applications include dispensing living cells / proteins / antibodies / bacteria / DNA; handling of biological reagents to form bio-assays; printing biological materials for microarray or lab-on-a-chip production; printing nanomaterials; printing conductive-inks; the delivery of sample material to beam lines e.g. synchrotrons and XFELs; etc. Typically, acoustic methods are used to deliver droplets with volumes in the pico-liter to low nano-litre range. The aim of this workshop is to describe and discuss one particular acoustic based microdroplet dispensing technology namely Polypico. The technology uses acoustics to dispense liquids from an inexpensive disposable polymer cartridge, with very high precision and accuracy. The use of disposable polymer cartridge completely avoids cross-contamination issues and lends itself well to R&D applications, high precision instrumentation applications, as well as product production applications.

Biography

Gabriel Leen is a Senior Research Fellow working with the Circuits & Systems Research Centre and the Optical Fibre Sensor Research Centre. He completed his PhD on the Formal Verification of the TTCAN protocol (ISO11898-4), in 2002. Gabriel has received a number of honours including: the IEE, Sir Frederic Calland Williams Premium: Knowledge Services Award; a Highly Commended Award from Emerald Publishing; the Institute of Engineers of Ireland – Young Engineer of the Year Award; the Institute of Engineers of Ireland, Thomond region – Chairman's Medal Award and an Irish Research Council for Science, Engineering and Technology (IRCSET) Postdoctoral Fellowship Award. Gabriel has successfully completed several Enterprise Ireland (EI) commercialisation focused awards, and Science Foundation Ireland (SFI) fundamental research awards. He is the PI on an SFI Career Development Award (CDA) which is researching and developing novel sensor technologies based on optical fibres.

gabrielleen@polypico.com