A modular reconfigurable digital microfluidics platform - DTU Orbit (07/11/2019)

A modular reconfigurable digital microfluidics platform

Miniaturizing the traditional wet lab processes and realizing the full potential of lab-on-a-chip technology (LOC) has been a great challenge for scientists and engineers in the quest of providing health care where such does not exist, or to increase lab efficiency and lower the operational cost. A range of practical LOC fabrication technologies has already been demonstrated, and as a result, the research of real-life applications has been steadily increasing. However, due to the variety of used technologies and LOC form factors, it often requires a modification or even a complete redesign of the available instrumentation systems. Standardization and flexible instrumentation has seen limited development in the LOC field even though developing on all application levels has been proven as an effective way to stimulate a growth in a research field. To address this, we present a modular digital microfluidics (DMF) instrumentation platform and a concept of integrated chip-instrument co-design that has the potential to solve a wide range of LOC instrumentation challenges.

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