

All-electrical analytic platform for digital fluidics

Fields of application

- Environmental applications
- Drug discovery

Stage of development

- Proof of concept
- Prototype
- Patent application

Cooperation offer

- R&D cooperation
- Contract research
- Licensing

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Technology

Next-generation biosensing technologies will need to tackle the grand challenges arising from the global demographic changes. Among the most crucial tasks to be addressed is the monitoring of food and environmental quality, as well as the medical diagnosis. Digital fluidics offers vast advantages in performing these tasks by relying on tiny containers encapsulating reacting biochemical species and allows massively parallelized assays and screening at high throughput using mainly optical detection approaches.

We envision that adding not-optic-based detectors to the droplet-based fluidics will provide a source of new and complementary information, which can pave the way towards label-free and contactless monitoring the kinetics of chemical reactions without interrupting the flow. The use of non-optical methods is imperative to speed-up the process of the testing of novel drugs and monitoring of water quality.

Application for:

- Digital fluidics: flow monitoring
- Counting and supervising droplets
- Fast screening for drug discovery
- Assessment of water quality

Device:

- All-electrical detection
- No optical components
- Single USB connection
- Cross-platform software

Detectable substances:

- Solutions: water, salts, acids...
- Dispersed metallic nano- and microparticles
- Labeled cells using conducting nano- and microobjects
- Ferrofluids
- Contactless detection of droplets

Technical details:

- Droplet detection in small tubing, e.g diameter of 500 μm and smaller
- Standalone detection platform
- Component for fluidic circuit
- Not invasive flow monitoring
- Flow adjustment via feedback

