

## Magneto-electrical detector

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, since it relies on tiny containers encapsulating reacting biochemical species and allows massively parallelized assays and screening at high throughput using *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. In addition to the detection tasks, these all-electric platforms can take over auxiliary tasks, e.g. indexing, counting of droplets, flow monitoring. Most promising in this respect are all-electrical detectors, which probe the properties of an analyte by measuring electrical responses.

In the frame of the WIPANO project “MEDTM”, we will develop a unique detection platform, which provides access to physico-chemical properties of an analyte. The unique selling propositions of the device are (i) its non-invasiveness to analyte, (ii) unnecessary of a transparent fluidic channel, (iii) cost efficiency and (iv) portability. We aim to reach the commercialization stage pursuing a number of key milestones, i.e. enhance the screening throughput, realize a platform independent of external electronic devices, provide a temperature stabilization of the response, and develop the app.