



## Ambitious 物質科学セミナー

# Mobile Electronics as Quantitative Point-of- care Diagnostic Tools: from Disc Player to Smartphone



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Current guidelines for healthcare emphasize rapid testing and reporting, which can be better satisfied by point-of-care (POC) diagnostic tools rather than centralized medical laboratories using automated multi-analyte analyzers by trained professionals. With POC testing, the turn-around time is significantly reduced, leading to earlier decision making and more efficient medical treatment. At present, POC protocols are predominantly based on rapid-test immunoassay strips/cassettes that combine gold nanoparticles for colorimetric (mostly qualitative) detection and flow-through systems for sample delivery. Mobile electronics provides a promising alternative to today's POC testing protocol; we have established both the chemistry and signal readout methodology for running assays with disc players, and recently explored the feasibility of using smartphones as the detection platform for quantitative colorimetric analysis.

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