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**Piezoelectric thick film technology facilitating easy integration and miniaturisation of smart systems for medical and industrial applications.**

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Piezoceramic materials are used in bulk form in numerous applications fields including low-frequency sensors, underwater transducers and transducers for industrial monitoring, medical imaging and therapeutic applications, non-destructive testing and others. They offer good and reliable performance at moderate cost. In recent years, the development towards frequencies higher than 20 MHz and miniaturisation in general created a need of a novel approach.

Piezoelectric thick films meet this challenge and offer in addition the possibility of integration piezoceramic components into systems. Furthermore, the technology opens for the possibility of manufacturing self-powered devices including energy harvesters. The thick film has been modified to also include lead-free piezoceramic materials. Such self-sustainable sensor systems can be deployed and operate maintenance-free, increasing reliability and decreasing cost and chemical waste volume.

Screen printing and pad printing technology will be described and examples of smart systems based on this technology will be presented.