

# Implantable and wearable technologies for health monitoring and control

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The combination of genetics, photonics, electronics and micromechanics is enabling completely new micro- and nano-technological approaches for compact and effective tools for diagnostics and therapeutics, which can be disposable, wearable, implantable or tattooable. These new approaches are opening the way to closed loop theranostics, i.e. devices integrating diagnostic capabilities and therapeutic response. In this talk, new technological approaches to produce innovative implantable/wearable devices for optogenetics and fiber photometry, for recording and manipulating brain activity in vivo will be shown. A second technology based on piezoelectric microelectromechanical systems (MEMS) for wearable skin sensing and actuation will be also presented. The possibility to integrate brain technologies with body technologies can enable new solutions for measuring and controlling neurological disorders in closed loop and real time.