PADOVA neuroscience CENTER

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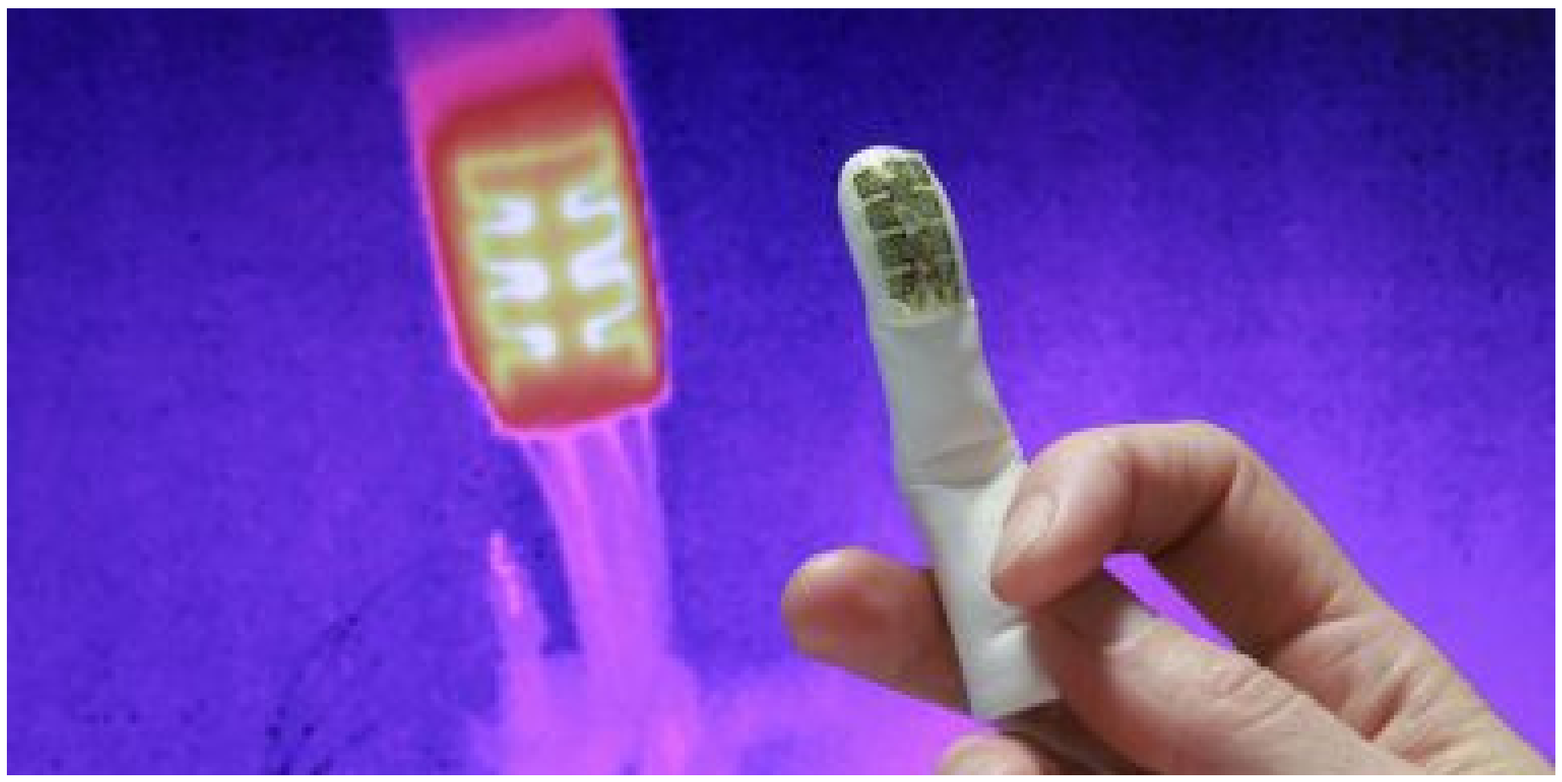
SALA SEMINARI VIMM

PNC DISTINGUISHED LECTURES

A talk by Silvestro Micera
(Scuola Superiore Sant'Anna, Pisa)

IMPLANTABLE AND WEARABLE MODULAR NEUROPROSTHESES TO UNDERSTAND AND RESTORE NEURAL FUNCTIONS



Neuroengineering is a novel discipline combining engineering including micro and nanotechnology, electrical and mechanical, and computer science with cellular, molecular, cognitive neuroscience with two main goals: (i) increase our basic knowledge of how the nervous system works; (ii) develop systems able to restore functions in people affected by different types of neural disability. In the past years, several breakthroughs have been reached by neuroengineers in particular on the development of neurotechnologies able to restore sensorimotor functions in disabled people.

In this presentation, I will provide several examples on how implantable interfaces can be used to restore sensory (tactile, position and thermal feedback for hand prostheses, vision), motor (grasping, locomotion), and autonomic functions (for type 2 diabetes and cardiovascular problems) and how they can be used also to understand cognitive functions such as language and decision making.

Silvestro Micera is Professor of Bioelectronics at the Scuola Superiore Sant'Anna (SSSA, Pisa, Italy) and at the Ecole Polytechnique Federale de Lausanne (Lausanne, Switzerland) where he is holding the Bertarelli Foundation Chair in Translational NeuroEngineering. He received the University degree in Electrical Engineering from the University of Pisa, in 1996, and the Ph.D. degree in Biomedical Engineering from the Scuola Superiore Sant'Anna, in 2000.

Prof. Micera's research interests include the development of neuroprostheses based on the use of implantable neural interfaces with the central and peripheral nervous systems to restore sensory and motor function in disabled persons. In particular, he is involved in translational experiments for hand prosthesis control in amputees, and the restoration of vestibular function, grasping and locomotion in different neurological disorders.

He is author of more than 300 WoS peer-reviewed papers and several international patents.