

# An overview of French activities on Smart Systems from the RENATECH network of cleanrooms and the laboratory of excellence ACTION

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## **Abstract**

More than ten years ago, the French government has created a network composed of the 5 largest French academic cleanrooms. This network is dedicated to micro- and nanofabrication and a large part of its activities is dedicated to Smart Systems, for a large number of applications. More recently, some long-term research projects called « Laboratories of excellence » have been selected and funded by the French government and some of them (for instance the Labex ACTION) are dedicated to research on hardware for Smart Systems (sensors, actuators and on-site signal processing). A presentation of the French landscape concerning the research activity about Smart Systems will be given, showing where the main players in this field are located. Some examples of illustrative research results will also be given, showing how new concepts are currently being developed, for applications related to advanced sensors or actuators, structural health monitoring, biomedical sensing, acoustic noise control or even neuromorphic computing.

## **Biodata**

Michel de Labachellerie has been scientist at the French National Center for Scientific Research (CNRS) since 1982. His research was first dedicated to high-frequency-stability semiconductor lasers at Orsay University, France. Then, he has been visiting researcher at Tokyo Institute of Technology between 1993 and 1995, where he switched to the field of MEMS technologies and founded the LIMMS (French-Japanese laboratory at the University of Tokyo). After that, he obtained a position of Research Director et CNRS (equivalent of professor) for the development of MEMS devices in a laboratory located in Besancon (France). In 2004, he switched to the management of research by creating in Besancon the FEMTO-ST Institute (700 staff with a broad spectrum of research in « Engineering Sciences ») and has been its general director for 8 years. He is also the coordinator of the "Renatech" national network of French large academic Nanofabrication facilities since 2004. Since 2012, he has been the scientific coordinator of a French Labex (Laboratory of Excellence) project on "Smart Systems" and scientific delegate at CNRS headquarters (Paris) in charge of partnerships with industry. Since 2016 he is vice-President of the "University Bourgogne Franche-Comte" in charge of research.