

## **Quantum Technology Program at FBK-CMM**

*Gianluigi CASSE*

Director of Centre for Materials and Microsystems, FBK, Trento

The next frontier for sensing (and computing) implies the exploitation of quantum effects. The awaited second quantum revolution is based on the ability of controlling individual quanta, rather than the collective quantum effects that are at determining the performance of many devices in current use like computers, smartphones, telecommunication devices, lasers, LED, fibre optics, and many others. This is expected to empower new generations of devices with unprecedented level of performances, with capabilities that are several order of magnitude better than the present state-of-the-art. This potential has been recognized by the European Commission that will launch in 2018 a Flagship initiative funded with a billion Euros over ten years, in order to keep Europe in the lead of scientific and economic activities based on Quantum Technologies (QT).

FBK is a core part of the R&D effort towards the exploitation of quantum effects in our future devices, integrating, with our production and prototyping capabilities, a dedicated joint laboratory that is being created in the Trentino research system together with the University of Trento and the CNR. I will here describe the point of interest and the capabilities of CMM in the context of QT.