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Diamond related activities at Institut Néel

Tuesday 21 December, 9:30 am
Sala Castagnoli, Istituto di Fisica, via P. Giuria 1

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Abstract

Diamond is known as the ultimate semiconductor, as its physical properties surpass those of all other classical or even wide bandgap semiconductors. In particular, applications in high power and high temperature electronics will enable new converter systems for low-loss electrical energy management, i.e. a green electronics.

Diamond is studied at Institut Néel since more than 20 years, with a particular interest for applications in electronics. Current studies are focused on basic physics phenomena (superconductivity, quantum nano-mechanics, quantum opto-mechanics, ...), on diamond properties tuning (doping, carrier transport, color centers, nanostructuring, ...), on innovative devices (10kV Schottky diode, Delta-FET transistor), and bio-related applications (functionalization, micro-electrodes arrays, cells signaling, ...).

The presentation will give an overview of these activities at Institut Néel.

The Author

After graduation from the École Normale Supérieure de Cachan in electrical engineering, Etienne Gheeraert obtained a Ph.D. in Physics at University Joseph Fourier. He was appointed Assistant Professor at this University in 1992 and become Professor in 2004. Between 1998 and 1999 he worked at the National Institute for Materials Science (formerly NIRIM) of Tsukuba (Japan), and from 2006 to 2008 he was Attaché for Science and Technology at the Embassy of France in Japan. His is now in charge of the Wide Bangap Semiconductor Group at Institut Néel (CNRS and Université Joseph Fourier).

His scientific interests span over a broad range of topics in diamond science, from growth to basic physics phenomena and device applications.