Dr. Wolfgang Wernsdorfer

Wolfgang Wernsdorfer received his education in Physics in Wuerzburg, Lyon, and then Grenoble, where he is at present Research Director at the Centre National de la Recherche Scientifique. During his PhD in the low-temperature laboratory (CNRS, Grenoble) Wolfgang Wernsdorfer and collaborators developed a unique device (micro-SQUID) for measuring magnetic properties of nanostructures with a billion times higher sensitivity than commercial magnetometers (Bronze Medal from CNRS, 1998). This instrument allows observation of the magnetic behavior of nanomagnets containing less than a thousand magnetic centers, which is still a world record. Using the unique advantages of this device, Wolfgang Wernsdorfer has studied a variety of peculiar phenomena, such as tunnelling of magnetization in molecular clusters, leading to the Agilent Europhysics Prize in 2002 and the International Olivier Kahn Award in 2006. His most recent project concerns molecular spintronics, that is the fabrication, characterization and study of molecular devices (molecular spin-transistor, molecular spin-valve and spin filter, molecular double-dot devices, carbon nanotube nano-SQUIDs, etc.) in order to read and manipulate the spin states of the molecule and to perform basic quantum operations. The main target for the coming years concerns fundamental science, but applications in quantum electronics are expected in the long run.