

## Press Release

ETH professor Nicola Spaldin receives the 2015 Körber Prize

# Prestigious honour goes to Switzerland

Zürich, 3. June 2015

Nicola Spaldin, Professor for Material Theory at ETH Zurich, has been awarded the Körber Prize, one of the most prestigious scientific awards in Europe. The EUR 750,000 Körber Prize honours outstanding scientists working in Europe. The researcher is to receive the Körber Prize for the creation of a new class of crystalline compounds that could revolutionise the world of computers.

With the help of computer models, the British chemist and materials scientist developed a new family of crystalline compounds: multiferroics, materials that respond to both electric and magnetic fields. The magnetic structure in these crystals can be influenced by applying electric fields. Multiferroics are thus destined for ultra-fast, extremely small and highly energy-efficient computers of the future.

### **Material with great potential**

Multiferroics not only promise to revolutionise the world of computers, but also provide a foundation for further material and technological innovations –from tiny, nanometre-sized motors and high-precision magnetic sensors to superconductors that function at room temperature.

Bismuth ferrite, for example, can permanently store information in both its magnetic and charge states. The key aspect is that, because it is multiferroic, the magnetic information in the crystal can be changed or detected using electric fields. This could provide the basis for future tiny magnetic memories that are not only extremely fast, but also consume very little electricity.

### **Revival of multiferroic research**

In 2000, Spaldin published a seminal article in which she established the theory as to why there are so few materials with multiferroic properties. With this prior understanding she was able to use computer simulations to tailor suitable crystals for research. This brought about a revival of multiferroics research which is now pursued worldwide by thousands of materials scientists.

For ETH President Lino Guzzella, the materials scientist is a worthy prize -winner: "I'm delighted that Professor Nicola Spaldin has been awarded this well-deserved honour and that we are able to provide the ideal conditions at ETH to conduct groundbreaking work in her field of research."

Spaldin has won numerous prestigious science prizes in the past and is an exceptional researcher; however she is also a highly engaged instructor. In 2014 she was honoured by her students with the Golden Owl award – a prize awarded at ETH for outstanding instruction.

Spaldin will use the prize money from the Körber Prize to further research multiferroic materials and develop them to the stage of application maturity. The 2015 Körber European Science Prize will be presented to the materials scientist on 7 September at the city hall in Hamburg.

### **Körber Prize back in Switzerland**

The Körber Prize is awarded annually by the Körber Foundation in Hamburg, this year for the 31st time. The prize honours particularly innovative research approaches with high application potential. Last year the award was won by May-Britt and Edvard Moser, who later won the Nobel prize. The prestigious prize last went to Switzerland in 2007 when ETH Professor Peter Seeberger was honoured for his groundbreaking work in the field of sugar synthesis.

### **Further Information**

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### **About Nicola Spaldin**

Nicola Spaldin studied geology and chemistry at Cambridge University in England. In 1996, she obtained her doctorate in chemistry at the University of California, Berkeley. She was a post-doctoral fellow at Yale University before taking an assistant professorship at the University of California, Santa Barbara (1997-2002) and an associate professorship (2002-2006). In 2006, she was awarded a full professorship. In 2011, she joined the staff at ETH Zurich.