

## Physics Colloquium

**Tuesday, August 20<sup>th</sup>, 2019 at 04:00 pm**

**Campus Limpertsberg  
Bâtiment des Sciences – room BS 0.03**

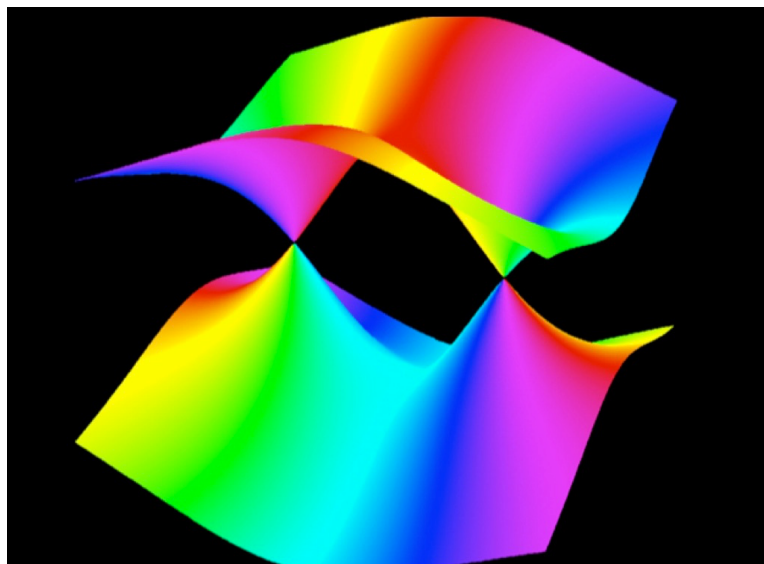
**Talk by Prof. Sir Michael Berry**

H H Wills Physics Laboratory, University of Bristol, UK

Invited by Prof. Alexandre Tkatchenko

### **Geometric phases and the separation of the world**

The waves that describe systems in quantum physics can carry information about how their environment has been altered, for example by forces acting on them. This effect is the geometric phase. It also occurs in the optics of polarised light, where it goes back to the 1830s. The underlying mathematics is geometric: the phenomenon of parallel transport, which also explains how falling cats land on their feet, and why parking a car in a narrow space is difficult. Incorporating the back-reaction of the geometric phase on the dynamics of the changing environment exposes the unsolved problem of how strictly a system can be separated from a slowly-varying environment, and involves different mathematics: divergent infinite series.



*About the presenter*

*Sir Michael Berry*



*Sir Michael Berry is known as an author of more than 500 scientific articles. His outstanding research has been devoted to various topics in quantum mechanics and optics. Specializing in semi classical description of the related effects, Prof. Berry made a substantial contribution to revealing some fundamental aspects of these scientific fields. Especially, he is famous for the elucidating the phenomenon of the geometric phase as a general property of quantum and optical systems.*

*Prof. Berry received his undergraduate degree (with honors) from Exeter University in 1962. Then, he did his postgraduate research at St. Andrews University (1962-1965), leaving with PhD degree in theoretical physics. Since 1965, he has been at Bristol University, first as a postdoctoral fellow, then as a Lecturer (1967-1974) and Reader (1974-1979). In 1979 he became a Professor of Physics and thereafter a Royal Society Research Professor (1988-2006) Currently, Sir Berry is a Melville Wills Professor (Emeritus) of Physics at Bristol University.*