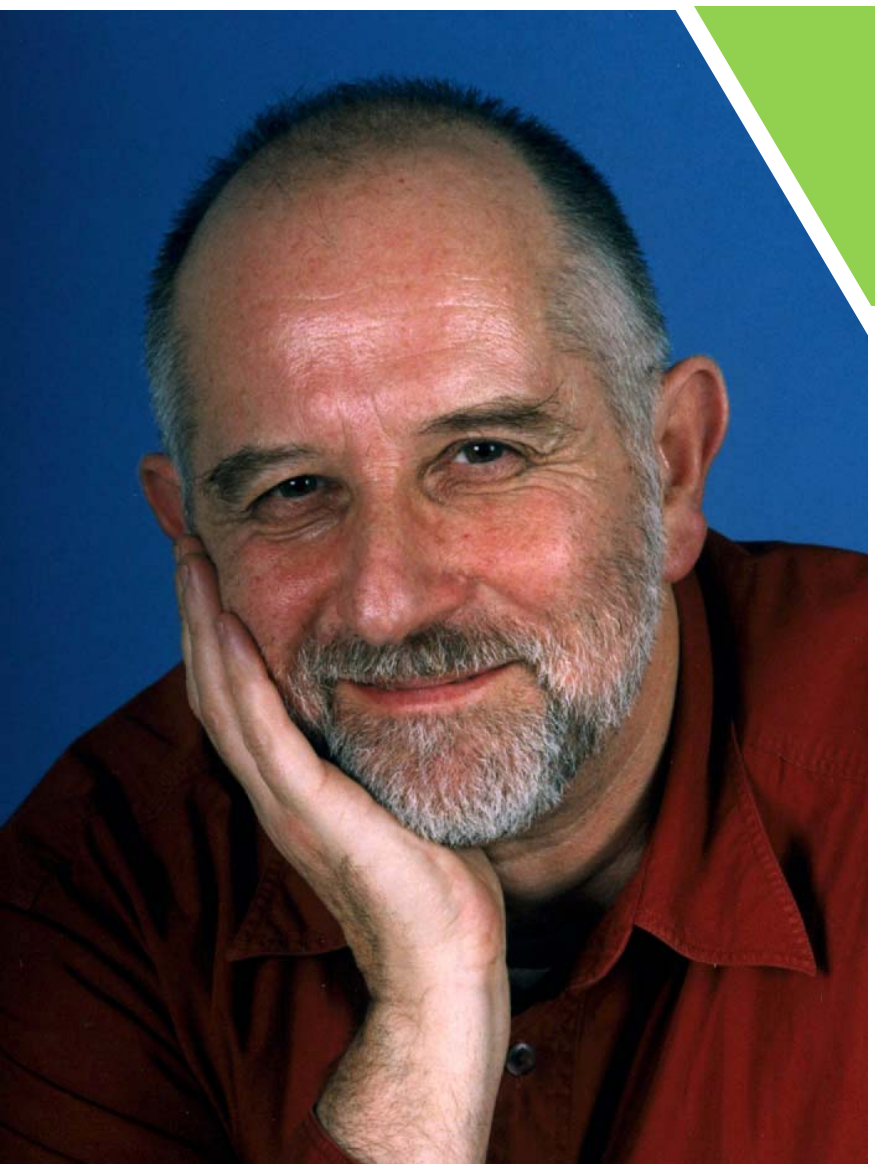
Institute Lecture

Prof. Michael Berry

University of Bristol, UK

Geometric phases and the separation of the world



@ 6:15 pm | March 7, 2019
Venue: L17, LHC

About the talk:

The waves that describe systems in quantum physics can carry information about how their environment has been altered, for example by magnetic fields 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 its environment and involves different mathematics: divergent infinite series.

About the Speaker:

Prof. Sir Michael Berry is a theoretical physicist known for his research in the 'borderlands' between classical and quantum theories and ray and wave optics. His emphasis is on geometrical singularities such as ray caustics and wave vortices. He discovered the geometric phase, a phase difference arising from cyclically changing conditions with applications in many areas of wave physics, including polarisation optics and condensed matter. Prof. Berry has received numerous awards, including the Maxwell Medal and the Dirac Medal of the Institute of Physics, the Royal Society's Royal Medal, the London Mathematical Society's Pólya Prize, the Wolf Prize and the Lorentz Medal.

All are invited to attend

Dean of Research and Development