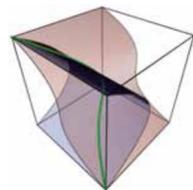


Michael Atiyah



Geometric Models of Matter

29th March / 17.30h / Lisboa

Fundação Calouste Gulbenkian

An unsolved problem in elementary Euclidean geometry

31st March / 11.30h / Braga

www.cmat.uminho.pt

Topology and quantum physics

4th April / 15.00h / Porto

www.fc.up.pt/cmup/atiyah

The index theory of Fredholm operators

6th April / 14.30h / Coimbra

www.uc.pt/fctuc/dmat

ABOUT PEDRO NUNES LECTURES

Pedro Nunes Lectures is an initiative of **Centro Internacional de Matemática (CIM)** in cooperation with **Sociedade Portuguesa de Matemática (SPM)**, with the support of the **Fundação Calouste Gulbenkian**, to promote visits of notable mathematicians to Portugal.

Each visitor is invited to give two or three lectures in Portuguese Universities on the recent developments in mathematics, their applications and cultural impact. **Pedro Nunes Lectures** are aimed to a vast audience, with wide mathematical interests, especially PhD students and youth researchers.

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Sir Michael Francis Atiyah is a British mathematician, and one of the most influential mathematicians of the twentieth century.

Born 22 April 1929, he was the son of the Lebanese writer Edward Atiyah and Scot Jean Levens. He grew up in Sudan and Egypt, and spent most of his academic life at Oxford, Cambridge, and the Institute for Advanced Study in Princeton. He was a doctoral student of the Scottish geometer William V. D. Hodge, and was awarded a doctorate in 1955 for a thesis entitled *Some Applications of Topological Methods in Algebraic Geometry*.

He has been President of the Royal Society (1990–1995), Master of Trinity College, Cambridge (1990–1997), Chancellor of the University of Leicester (1995–2005), and President of the Royal Society of Edinburgh (2005–2008). He is currently retired and an honorary professor at the University of Edinburgh.

He has had many mathematical collaborations, in particular with Raoul Bott, Friedrich Hirzebruch and Isadore Singer, and his students include Graeme Segal, Nigel Hitchin and Simon Donaldson.

Collaboration with Bott resulted in the Atiyah-Bott fixed-point theorem. With Hirzebruch, he founded topological K-theory, a major tool in algebraic topology, that describes the ways in which high dimensional space can be twisted. His best known result is the Atiyah-Singer index theorem, proved with Singer in 1963, a fundamental and widely used result which can be used to count the number of independent solutions of many important differential equations. More recently he has worked on topics inspired by theoretical physics, such as instantons and monopoles, which are responsible for some subtle corrections in quantum field theory.

He has received many awards for his research, including the Fields Medal in 1966, the Copley Medal in 1988, and the Abel Prize in 2004.

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