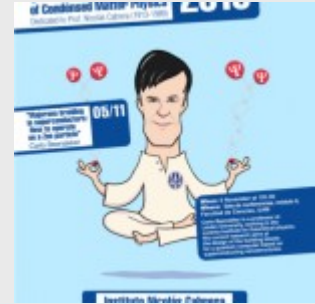


Majorana Braiding in Superconductors: How to Operate on a Zen Particle

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Title: Majorana braiding in superconductors: How to operate on a Zen Particle

When: Tuesday 05 November, 2015 at 12h00

Where: Sala de conferencias módulo 00, Facultad de Ciencias.

Speaker: Carlo Beenakker, Lorentz Institute for Theoretical Physics, Leiden University, The Netherlands.

ABSTRACT:

Among the many exotic properties of topological superconductors, the prediction that they can host Majoranas stands out both for its fundamental interest and for possible applications in topological quantum computing. To exchange (braid) pairs of Majoranas is the heroic experiment, since it would identify them as a fundamentally new type of quasiparticles with non-Abelian statistics. The road towards this goal has several milestones, starting from the detection of the zero-mode itself, on which the present generation of experiments is focused. In this talk we look ahead towards the next milestones: the construction of a qubit out of Majoranas, the measurement of its coherence times, and finally the braiding experiment to demonstrate its non-Abelian nature. The key problem that we address is how to operate on a cipher with zero charge, zero spin, zero energy, and zero mass — a “Zen particle”.