



Departamento de  
Física de la  
Materia Condensada  
Universidad Zaragoza

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## Nanogenerators: Small Power, Big Impact

Harvesting energy from ambient sources has generated tremendous interest as it offers a fundamental energy solution for 'small power' applications, including ubiquitous wireless sensor nodes; portable, flexible and wearable electronics; biomedical implants and structural/environmental monitoring devices. Energy harvesting from ambient vibrations is particularly attractive as these are ever present and easily accessible, originating from sources such as moving parts of machines, fluid flow and even body movements. In this context, piezoelectric materials offer the simplest means of directly converting mechanical vibrations into electrical power and are well suited for microscale device applications. In particular, nanoscale piezoelectric energy harvesters, or nanogenerators, are capable of converting small ambient vibrations into electrical energy, thus paving the way for the realisation of the next generation of self-powered devices. Hybrid polymer-ceramic nanocomposites combines the best of both materials, while developing scalable nanofabrication techniques for flexible, low-cost and highly efficient polymer-based nanogenerators and sensors.

*Dr Sohini Kar-Narayan is a University Lecturer in the Dep. of Materials Science, leading an interdisciplinary research group in the field of energy harvesting materials and technologies. She is the recipient of a Royal Society Dorothy Hodgkin Fellowship (2011) and an ERC Starting Grant (2014), and was recognised by the World Economic Forum through a Young Scientist award (2015). She received a BSc in Physics (Honours) in 2001 from the University of Calcutta, India, and MS (2004) and PhD (2009) in Physics from the Indian Institute of Science, Bangalore. She has been a Fellow of Clare Hall College, Cambridge since 2009, and a Bye-Fellow and Director of Studies at Homerton College, Cambridge since 2014.*

**8 de Abril (Viernes)**

Con la colaboración de:



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Universidad Zaragoza

LUGAR: SALA DE GRADOS DE LA  
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HORA: 12:30