



Departamento de  
Física de la  
Materia Condensada  
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**M<sup>a</sup> José Calderón**

*Instituto de Ciencia de Materiales de Madrid*

## “10 years of Fe superconductors”

In 2008 a new batch of families of high  $T_c$  superconductors were discovered. This second class of high  $T_c$  superconductors include many compounds all of which have in common Fe-pnictogen or Fe-chalcogen layers which dominate the states at and near the Fermi surface. Similarly to other non-conventional superconductors, superconductivity arises from doping or applying pressure to an antiferromagnetically ordered system. Unlike cuprates, Fe superconductors require the consideration of the complex interplay of all the Fe 3d orbitals. I will review some of the highlights of our research in this field in the last few years.

Some refs:

1. Magnetic interactions in iron superconductors: A review. E. Bascones, B. Valenzuela, and M.J. Calderón. arXiv:1503.04223. Comptes Rendus Physique 17, 36 (2016)
2. Strong correlations and the search for high- $T_c$  superconductivity in chromium pnictides and chalcogenides. J.M. Pizarro, M.J. Calderón, J. Liu, M.C. Muñoz, and E. Bascones. Phys. Rev. B 95, 075115 (2017), arXiv:1610.09560

*María José Calderón is a tenured scientist at ICMM-CSIC since 2011. After finishing her PhD on manganites in 2001, she spent three years as a Churchill College research fellow at the Cavendish Laboratory (University of Cambridge) and two years at the Condensed Matter Theory Center (University of Maryland). In the last few years she has made contributions within three research lines: (a) multiorbital physics in iron superconductors, (b) quantum control of dopants in silicon for quantum computing, and (c) electronic reconstruction of oxide heterostructures. She is currently the president of the Condensed Matter Division Physics (GEFES) of the Spanish Royal Physics Society ([gefes-rsef.org](http://gefes-rsef.org)).*

Con la colaboración de:



Facultad de Ciencias  
Universidad Zaragoza

**15 de Junio (viernes)**

SALÓN DE ACTOS DE

**MATEMÁTICAS**

**HORA: 12:30**