

# Study of the order parameter in noncentrosymmetric $Mg_{10}Ir_{19}B_{16}$

R. Ribeiro<sup>1</sup>, W. Brammer-Escamilla<sup>1</sup>, I. Bonalde<sup>1</sup>, G. Mu<sup>2</sup> and H. Wen<sup>2</sup>

<sup>1</sup>*Centro de Física, Instituto Venezolano de Investigaciones Científicas, Apartado 21827,  
Caracas 1020-A, Venezuela*

<sup>2</sup>*National Laboratory of Condensed Matter Physics, Chinese Academy of Science, P.O. Box  
603, Beijing 100080 People's Republic of China*

## Abstract

The study of noncentrosymmetric heavy fermion and transition-metal superconductors has attracted growing efforts to understand the role of lack of inversion symmetry on superconductivity. The transition-metal  $Mg_{10}Ir_{19}B_{16}$  is the most recently discovered noncentrosymmetric superconductor. In noncentrosymmetric compounds it is expected a mixture of spin-singlet and spin-triplet states. Despite this, from previous specific heat measurements it was found that  $Mg_{10}Ir_{19}B_{16}$  behaves like a s-wave isotropic superconductor. In this talk we will discuss magnetic penetration depth data of  $Mg_{10}Ir_{19}B_{16}$  down to 50 mK. The preliminary results show the existence of multiple superconducting gaps.