

Abstract Submitted
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New Superconducting Material: Mg_2SnX ($\text{X} = \text{C}, \text{B}$)¹ ANTONIO JEFFERSON MACHADO, Departamento de Engenharia de Materiais - Escola de Engenharia de Lorena - USP, BRUNO DE GODOI GURATTI, AUDINIR DANILO BORTOLOZO, CARLOS ALBERTO DOS SANTOS, DEMAR TEAM — In the Mg-Sn system, there is only one intermetallic phase of Mg_2Sn composition. This intermetallic phase crystallizes in a cubic symmetry with prototype CaF_2 structure, named anti-fluorite. About three years ago, our group reported the existence of superconductivity in the Mg_2SnB intermetallic phase with a superconducting critical temperature close to 35 K [1]. In this intermetallic phase the boron atoms occupy the interstitial sites available in the structure. This work shows that, besides boron atoms, carbon also can occupy the interstitial sites in the same structure and can also induce superconductivity in the system with high critical superconducting temperature. This conclusion is sustained by resistivity, magnetization, and X-ray diffraction measurements. This report is based upon work supported by FAPESP (2005/01257-9). [1] B. Ferreira, C. M. Franco, C. A. M. dos Santos, D. Rodrigues Jr., L. Ghivelder, and A. J. S. Machado; Phys. C 408- 410, 148 (2004)

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