

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**Superconductivity in a new ternary compound of the Ta-Zr-B system with FeB prototype structure**<sup>1</sup> ANTONIO JEFFERSON S MACHADO, JULIO CESAR CANOVA, LUCAS EDUARDO CORREA, BRUNO SANCHES DE LIMA, FREDERICO BENEDETTO SANTOS, University of So Paulo — Recently was published the discovery of superconductivity in  $\text{Ta}_{1-x}\text{Hf}_x\text{B}$  which presents maximum  $T_c$  close to 6.7 K on the  $\text{Ta}_{0.7}\text{Hf}_{0.3}\text{B}$  nominal composition. This material display strongly signature of a new multiband compound. Within this scenario in this work we shall show a systematic study in the  $\text{Ta}_{1-x}\text{Zr}_x\text{B}$  series of the compounds. The results sustained by X-ray diffraction, resistivity, magnetization and heat capacity measurements suggest that all series crystallize in FeB prototype structure with maximum superconducting critical temperature close to 6.0 K for  $\text{Ta}_{0.8}\text{Zr}_{0.2}\text{B}$  nominal composition.

<sup>1</sup>Fapesp number 2016/11774-5

Antonio Jefferson Machado  
University of So Paulo

Date submitted: 12 Nov 2016

Electronic form version 1.4