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Superconductivity in Zr1-xVxB2 LUIS HENRIQUE CONSOLINE, SERGIO RENOSTO, Escola de Engenharia de Lorena, Universidade de Sao Paulo, ZACHARY FISK, Departments of Physics and Astronomy, University of California at Irvine, ALEX COSTA, ANTONIO JEFFERSON MACHADO, Escola de Engenharia de Lorena, Universidade de Sao Paulo, UNIVERSITY OF CALIFORNIA AT IRVINE COLLABORATION — Since the discovery of superconductivity in MgB_2, much attention has been give for research in new diboride with potential for exhibit superconductivity. There are many diboride of refractory metals which crystallize in the same prototype structure than MgB_2 (AlB_2 prototype structure). However, only NbB_2 can exhibit superconductivity with superconductor critical temperature close to 3.5 K on the optimum composition. Some authors have been reported superconductivity in ZrB_2 with critical temperature close to 5.5 K, but this result was not reproduced for other research groups. In this work we present results which show that small substitution of Zr by V in the $Zr_{1-}xVxB_2$ is able for induce superconductivity in the matrix phase (ZrB_2). The best composition gives a superconducting critical temperature close to 8.5 K.

Luis Henrique Consoline
Escola de Engenharia de Lorena, Universidade de Sao Paulo

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