

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

^{75}As -NMR studies on $\text{Ba}(\text{Fe}_{1-x}\text{Ni}_x)_2\text{As}_2$ single crystals JIANLIN LUO, XIAODONG ZHANG, GUOZHI FAN, XIUNIAN JING, Institute of Physics, Chinese Academy of Sciences, CHENGLIN ZHANG, Department of Physics and Astronomy, The University of Tennessee — ^{75}As nuclear magnetic resonance (NMR) were measured for $\text{Ba}(\text{Fe}_{1-x}\text{Ni}_x)_2\text{As}_2$ single crystals with $x = 0.05$ and $x = 0.1$ under 0 GPa and 1.5 GPa, respectively. For the optimal doped sample with $x = 0.05$, the superconducting transition temperature T_c is strongly suppressed from 18 K to 5 K, while for the over-doped sample with $x = 0.1$, it is turned from the superconducting ground state to a disordered paramagnetic state under 1.5 GPa. Our experimental results show that the antiferromagnetic spin fluctuations are suppressed as well as T_c . The experimental results can be explained with the two-band model. As a result, the electronic band is downward shifted with increase of pressure and the electrons become the dominant carriers in the system.

Jianlin Luo
Institute of Physics, Chinese Academy of Sciences

Date submitted: 10 Nov 2011

Electronic form version 1.4