Abstract Submitted
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Superconductivity in La($Ni_{1-x}T_x$)C_2 (T = Cu, Ti, and Pt)[1] H.H. SUNG, S.Y. CHOU, Y.C. KUNG, H.K. KUO, K.J. SYU, W.H. LEE, Department of Physics, National Chung Cheng University, Ming-Hsiung, Chia-Yi, Taiwan, ROC, W.H. LEE TEAM — $LaNiC_2$, which crystallizes in an orthorhombic $CeNiC_2$ type structure with space group A_{mm2}, is the first nickel-based ternary carbide superconductor with $T_c \sim 2.7$ K.[1,2] Previous report showed that about 50% substitution of La in $LaNiC_2$ with the 5f thorium (Th) element could enhance the superconducting critical temperature T_c up to 7.9 K.[3] We present the results of static magnetization and electric resistivity data for fifteen polycrystalline La($Ni_{1-x}T_x$)C_2 (T = Cu, Ti and Pt) compounds measured in the temperature range $1.8 \sim 4.4$ K and $2.0 \sim 300$ K, respectively. Discussion of the improvement, with respect to pure $LaNiC_2$, on the superconducting critical temperature T_c will be directed toward the changes of valence, lattice parameters as well as the effects of solubility limit in the pseudoternary La($Ni_{1-x}T_x$)C_2 alloys. [1]W.H. Lee, H.K. Zeng, Y.D. Yao and Y.Y. Chen, Physica C **266**, 138 (1996). [2]V.K. Pecharsky, K.A. Gschneidner, Jr., and L.L. Miller, Phys. Rev. B **58**, 497 (1998). [3]W.H. Lee and H.K. Zeng, Solid State Commun. **102**, 433 (1997).

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