Abstract Submitted
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Superconducting properties of the hexagonal layered molybdenum carbide η-Mo_3C_2 K. YAMAURA, Q. HUANG, M. AKAISHI, E. TAKAYAMA-MUROMACHI, National Institute for Materials Science, Japan — Superconductivity of η-Mo_3C_2 (T_c=8.5K) was reported in 1960s, while detailed superconducting and structure properties remained uncertain probably because those were complicated somewhat by carbon non-stoichiometry, partially thermal decomposition, and so on. Recently, we found the degree of problems is fairly reduced by employing high-pressure method, resulting in a distinct sample quality-improvement, which allowed us to conduct neutron diffraction, magnetic susceptibility, and specific-heat measurements on a polycrystalline form of η-Mo_3C_2 [1]. A significant layered character was found in the structure, which comprises edge-sharing CMo_6 octahedra sheets and $\sim$50% carbon occupied blocks. Magnetic characterization revealed the Ginzburg-Landau parameter of η-Mo_3C_2 is $\sim$26, which is close to that for the comparable T_c compound Li_2Pd_3B ($\sim$21), but less than a half of that for $MgCNi_3$ ($\sim$54).

[1] K. Yamaura et al., PRB 74, 184510 (2006).

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