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# Interstitial doping induced superconductivity at 15.3 K in Nb<sub>5</sub>Ge<sub>3</sub> compound

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Article history 

It is reported superconductivity in Nb<sub>5</sub>Ge<sub>3</sub>C<sub>0.3</sub>, an interstitial carbide compound. The temperature dependence of the electrical resistivity, *ac*-susceptibility, and heat capacity (HC) indicate that a bulk type-II superconductivity appears at  $T_c = 15.3$  K. Magneto-resistance measurements suggest an

Neutron diffraction analyzes locate the carbon atoms at the interstitial  $2b$  site of the Mn<sub>5</sub>Si<sub>3</sub> type-structure. Heat capacity data below  $T_c$  are well described by BCS theory. The size of the jump at  $T_c$  is in good agreement with the superconducting volume fraction observed in susceptibility measurements. A Debye temperature and Sommerfeld constant were also extracted from heat capacity data as 343 K and 34 mJ/mol K<sup>2</sup>, respectively.

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