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## Single crystal growth of Np compounds and search for filled-skutterudite Np compounds

D. Aoki<sup>1</sup>, Y. Homma<sup>1</sup>, Y. Shiokawa<sup>1,2</sup>, E. Yamamoto<sup>2</sup>, A. Nakamura<sup>2</sup>, Y. Haga<sup>2</sup>, T. Takeuchi<sup>3</sup>, R. Settai<sup>4</sup> and Y. Ōnuki<sup>4,2</sup>

<sup>1</sup>Institute for Materials Research, Tohoku University, Oarai, Ibaraki 311-1313

<sup>2</sup>Advanced Science Research Center, Japan Atomic Energy Research Institute, Tokai, Ibaraki 319-1195

<sup>3</sup>Low Temperature Center, Osaka University, Toyonaka, Osaka 560-0043

<sup>4</sup>Graduate School of Science, Osaka University, Toyonaka, Osaka 560-0043

We succeeded in observing the de Haas-van Alphen (dHvA) oscillations in an antiferromagnet NpCoGa<sub>5</sub> with the tetragonal structure. The starting material, Np metal (weight: 1 g) was prepared by the method of electrolysis from an aqueous solution. The single crystals of NpCoGa<sub>5</sub> were grown by the Ga-flux method. The dHvA signal was significantly enhanced at higher fields than the metamagnetic transition field  $H_m$  ( $= 43$  kOe for  $H \parallel [001]$ ), where the antiferromagnetic state is changed into the field-induced ferromagnetic (paramagnetic) state. In the paramagnetic state, the Fermi surface is found to consist of two kinds of cylindrical main Fermi surfaces and small pocket Fermi surfaces. The cyclotron masses of the main Fermi surfaces are considerably large, ranging from 6 to 12  $m_0$ . This is the first case where the Fermi surface was determined experimentally in the transuranium compounds. The single crystal growth of Np skutterudite compounds is a challenging subject. Our strategy will be explained in the workshop.

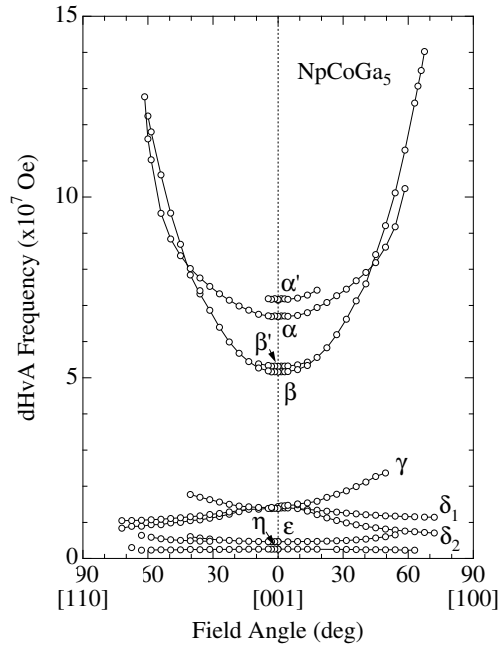


Figure 1: Angular dependence of the dHvA frequency in the paramagnetic state on NpCoGa<sub>5</sub>