P1.5 Magnetic quantum oscillations in the normal state of YNi_2B_2C

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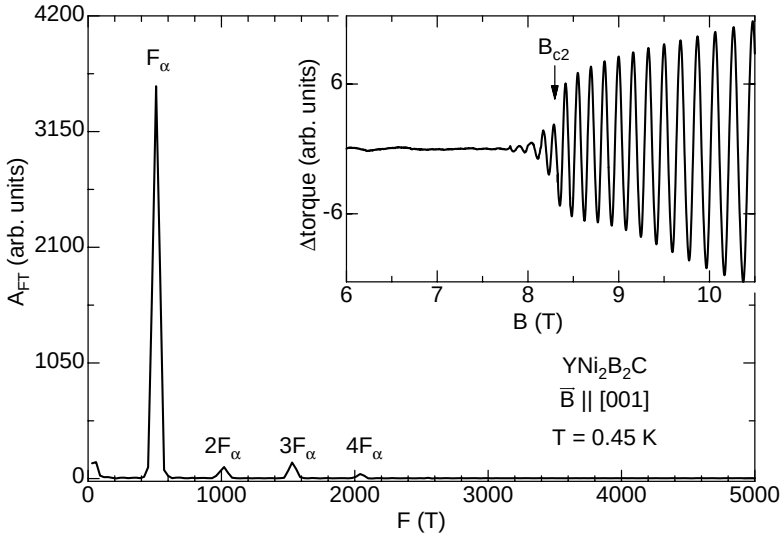
The measurement of magnetic quantum oscillations at high magnetic fields, such as the de Haas–van Alphen (dHvA) effect, is one of the major techniques to study Fermi-surface properties in metals. It is remarkable, that this magnetic quantum oscillations persist deep into the mixed state of many type-II superconductors where the gap at the Fermi surface is expected to evolve. The damping of the oscillation amplitude in the mixed state, therefore, can provide information on superconducting-gap properties. For the type-II superconductor YNi_2B_2C, strong anisotropies of the gap parameter have been predicted. We will present dHvA measurements of different YNi_2B_2C single crystals in magnetic fields up to 32 T. At high magnetic fields three different dHvA frequencies could be detected. The lowest frequency, F_α, could be well resolved down to lower fields just above the upper critical field. An unexpectedly sudden vanishing of the dHvA signal in the mixed state has been observed (see Fig.) [1].



[1] O. Ignatchik *et al*., J. Magn. Magn. Mater., in press.