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Pressure dependence of the Fermi surface of the nematic superconductor $FeSe_{1-x}S_x$[1] PASCAL REISS, Clarendon Laboratory, University of Oxford, UK, DAVID GRAF, NHMFL, Tallahasse, Florida, USA, AMIR A. HAGHIGHIRAD, AMALIA I. COLDEA, Clarendon Laboratory, University of Oxford, UK — Upon application of hydrostatic pressure the phase diagram of bulk FeSe evolves from a nematic phase with low $T_c \approx 11$K towards a magnetic phase which harbours a high-T_c superconductor with $T_c \approx 40$K [1, 2]. This complex interplay between different competing orders suggests that superconductivity may be dominated by both nematic and spin-fluctuations that are tuned by applied pressure. Similar to hydrostatic pressure, chemical pressure by sulphur doping suppresses the nematic phase but no magnetic order has been detected yet [3]. Here, we will present quantum oscillation studies of $FeSe_{1-x}S_x$ up to 45T under applied hydrostatic pressure and we will follow the evolution of the Fermi surface from the nematic phase towards the high pressure high T_c state. The temperature dependence of the quantum oscillations allows us to determine the quasiparticle masses and to follow the effect of electronic correlations as a function of applied pressure.
[1] Terashima *et al.*, Phys. Rev. B **93**, 094505 (2016)
[2] Medvedev *et al.*, Nat. Mater. **8**, 630 - 633 (2009)
[3] Watson *et al.*, Phys. Rev. B **91**, 155106 (2015)

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