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, Tallahassee, 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\(_c\) ≈ 11K towards a magnetic phase which harbours a high-T\(_c\) superconductor with T\(_c\) ≈ 40K \(^{1, 2}\). 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.

\(^{1}\)We acknowledge the support of the EPSRC, UK (EP/I004475/1, EP/I017836/1). A portion of this work was performed at the NHMFL, which is supported by National Science Foundation Cooperative Agreement No. DMR-1157490 and the State of Florida.