Contribution ID: **55** Type: **Parallel talk**

Superconductivity: a new dimension in 2D systems

Friday, 6 November 2020 12:00 (20 minutes)

By virtue of its inherent two-dimensional (2D) nature van der Waals (vW) materials offer a robust and easily realizable platform for future technological applications. Superconductivity is one among the various quantum phenomena that these systems have exhibited. Among vW systems NbSe₂ is inherently superconducting and semiconducting systems such as MoS₂, WSe₂ etc has shown superconductivity when increasing the carrier concentration. One of the polymorphic phases of MoS₂, the metallic 1T phase also showed superconductivity. Electrical characterization on the few-layer 1T MoS₂ sample owing to its high carrier density also reveals transition to a 2D superconducting phase with characteristic Berezinskii–Kosterlitz–Thouless transition (BKT) phase transition and anisotropy in the magneto-transport with respect to field directions below 1 K. The features of superconductivity in 2D will be discussed stressing on 1T MoS₂. Interesting features such as Ising superconductivity and Bose metal phase observed in some of these systems will also be touched upon.

Primary author: HARIHARA SHARMA, Chithra (Universität Hamburg)

Co-authors: Dr THALAKULAM, Madhu (School of Physics,IISER TVM); Prof. BLICK, Robert (Center for Hybrid Nanostructures, Universität Hamburg)

Presenter: HARIHARA SHARMA, Chithra (Universität Hamburg)

Session Classification: Talks from participants: Quantum Systems (de/engl)