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Thin Film and Surface Preparation Chamber for the Low Energy Muons Spectrometer

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We have designed and constructed a thin film preparation chamber with base pressure of $< 2 \times 10^{-9}$ mbar. Currently, the chamber (see figure) is equipped with two large area evaporators (a molecular evaporator and an e-beam evaporator), an ion sputtering gun, a thickness monitor and a substrate heater. It is designed such that it can handle large area thin film samples with a future possibility to transfer them in vacuum directly to the LEM spectrometer or to other advanced characterization facilities in the Quantum Matter and Materials Center (QMMC) which will be constructed in 2024. Initial commissioning of the chamber resulted in high quality, large area and uniform molecular films of CuPc and TbPc₂ on various substrate materials. We present first results from a low energy μ SR measurements on these films.

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