Contribution ID: **251** Type: **Poster**

In situ, operando investigation of thin film devices using LE-μSR

Thursday, 1 September 2022 18:40 (20 minutes)

Tuning the energy of incoming muons in the low energy muons (LEM) spectrometer is done primarily by applying a high voltage (HV) on the sample plate to accelerate or decelerate the implanted muons. Therefore, any manipulation on the sample that requires the use of direct contacts to it becomes complicated. For example, in order to run a current through the sample or apply an electric field on the sample, the power supply and contacts have to be on the same HV as the sample. A simple way to achieve this is to place the power supply (or any other standard lab equipment or device) on an insulated platform outside the cryostat and bias both the sample and the device by the same HV. Although the idea is simple, its application requires serious safety and reliability considerations. Here we present the design of this HV table (see figure) and discuss some applications in various thin film devices.

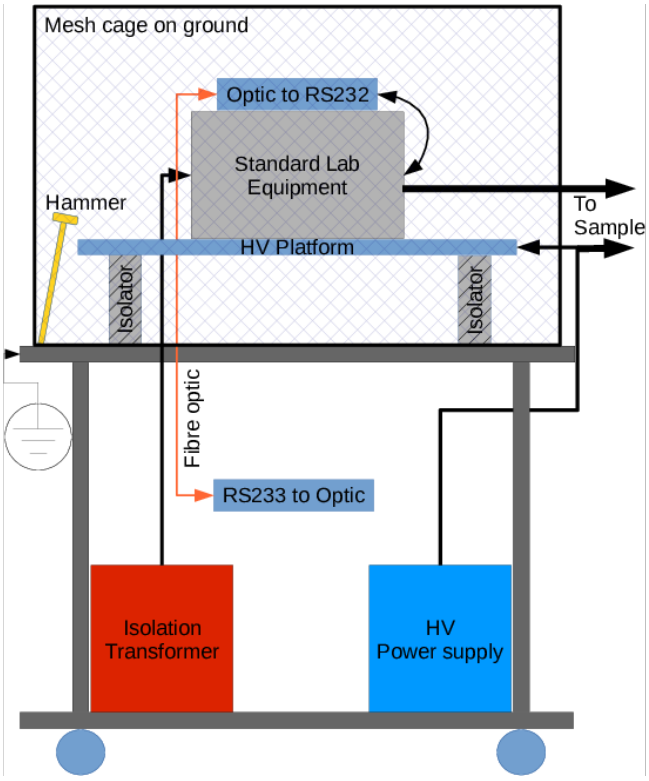

Figure 1: Schematic of the LEM high voltage table

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Session Classification: Posters

Track Classification: New techniques