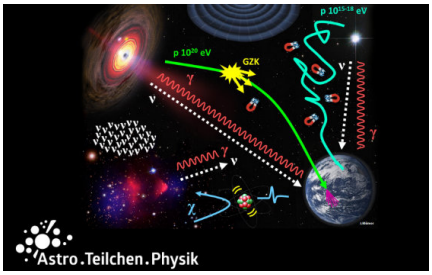

Contribution ID: **111** Type: **Poster**

Low-background radioactivity counting with the most sensitive HPGe detector in Germany

Wednesday, October 16, 2024 6:15 PM (2 minutes)

This poster presents an ultra low-level -ray counting setup in the shallow-underground laboratory Felsenkeller in Dresden, Germany. It includes a high-purity germanium detector of 163% relative efficiency within passive and active shields. The passive shield consists of 45 m rock overburden (140 meters water equivalent), 40 cm of low-activity concrete, 15 cm of high purity lead, 10 cm of oxygen-free radiopure copper, and an anti-radon box. The active veto is realized by five large plastic scintillation panels surrounding the setup. All together, these shieldings attenuate the remaining background rate down to 116(1) cts/kg/d in an energy interval of 40-2700 keV. This is the lowest background of any HPGe detector in Germany, among the lowest worldwide, and enables studies of samples well below 1 mBq. In addition to the design of the setup, the underlying analysis techniques will be presented.

Summary

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Session Classification: Poster session leading into social dinner buffet