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Investigation of Gamma-Radiation Background Using sCVD Diamond Detectors

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Radiation background poses a challenge in the accurate evaluation of radiation environments, such as in neutron spectroscopy, and beam monitoring. In particular, gamma-radiation background complicates the measurement of low-energy particles. Understanding the methodology for discriminating gamma-radiation background can significantly improve the accuracy of radiation measurements in mixed radiation fields. The primary objective of this study is to investigate the gamma-radiation sensitivity of single-crystal Chemical Vapor Deposition (sCVD) diamond sensors with respect to varying thicknesses. The measurements were performed at the thermal neutron beamline of the TRIGA Center, Atominstitut, Wien, Austria.

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