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[Invited Lectures]

Overview of the activities in Low-background laboratory at the Institute of Physics Belgrade

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Abstract: Since 1997. when a cavern was excavated, and positioned under 12m of soil, we could be referred to as the Low-background laboratory for Nuclear physics. Our main activities are, or could be branched from, studies of background radiation of measurements in underground cavern. Currently, most of the activities are in connection with Cosmic rays studies, with emphasis on atmospheric influence on measured Muon flux and, also, detection of neutrons resulting from Cosmic rays interactions with Lead shielding of HPGe detectors. Moreover, we were studying background radiation from Radon in air, radiation from concrete and soil and skyshine radiation. Studies were continued in several international collaborations and experiments, for example on Shine experiment at CERN, where we were studying hadron interactions in connection with Cosmic rays, than the MICE experiment at RAL, UK, which is an example of using our knowledge about Muon physics for Muon ionisation cooling. Our collaboration with IAEA enabled us to produce first Indoor Radon map of Serbia. There was also participation in several European experiments in connection to Nuclear physics. The newest example of participation in a collaboration is the gLOWCOST, a collaboration for building and operating a World network of small sandwich-type plastic scintillator detectors for monitoring of muon flux.

Keywords: Cosmic rays, Gamma spectroscopy, Underground laboratory

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