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Lecture 4: Low background technologies in underground physics-II

Monday 12 October 2015 15:15 (1h 15m)

Over the past decades, fundamental physics experiments such as dark matter or double beta decay have required ultra-low background environments. Successful results from these experiments depend critically on selection of radiologically ultra-pure materials, high suppression of all types of radioactivity (cosmic rays, gamma rays, neutrons, radon and its progenies). In the presentation, I will summarize the deep underground laboratories in the world, the basic methods of selection of ultra-pure materials, shielding of different types of radioactivity as well as the suppression of radioactivity caused by the presence of radon. Influence of the background on statistical significance of the obtained results and the progressive detection methods (pixel detectors) allowing further suppression of the background will be also presented.

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