

Short-lived Rn-222 daughters in cryogenic liquids

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Presently cryogenic liquids are extensively used in experiments looking for rare nuclear events at low energies, for which the main issue is reduction of background. One of its most important sources may be intrinsic radioactive impurities of the cryogenic gas. A method to investigate properties of the short-lived Rn-222 daughters present in liquid nitrogen will be presented. Since they are produced as positive ions they can move in electric field created by the detector itself (e.g. in TPCs). Drift of radioactive ions may lead to their inhomogeneous distribution in the detector's active volume and thus influence the expected background signal. Measurements of the ionic life-time and mobilities will be discussed.

Primary author: Mr PELCZAR, Krzysztof (Institute of Physics, Jagiellonian University)

Presenter: Mr PELCZAR, Krzysztof (Institute of Physics, Jagiellonian University)

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