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# Cherenkov Radiation from Relativistic Heavy Ions in Liquid Radiator

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Properties of spectral and angular distributions of Cherenkov radiation (ChR) from relativistic heavy ions (RHI) in solid radiators taking account of their slowing-down have been recently investigated [1-3]. The obtained new peculiarities such as the bright diffraction like structure showed that not all features of ChR are well studied yet while they might be attractive for modern detector physics [4-7].

Here we present calculations of ChR spectral and angular distributions from RHI (Ag, Pb, U) with initial energies starting from 600 MeV/u in Iodine-Naphthalene (C<sub>10</sub>H<sub>7</sub>I) liquid radiator. Such type of radiator has good resistance to a high radiation rate of RHI –the reason why it was chosen for new Time of flight Cherenkov detector [5-7] that is currently being developed at GSI for the FAIR Super FRS facility. A precision down to about 50 ps in time is also a key parameter for new detector. Consequently, correct simulations of RHI penetration through a liquid radiator are required in order to quickly estimate detector capabilities during the design stage.

References:

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