9. Annual MT Meeting



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## Application of the active target technique for nuclear and particle physics

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An active target detector allows direct reaction studies at small momentum transfer, not possible with any other techniques except usage of the storage rings with internal gas targets. The active target detector is based on a gas detector concept where the gas constitutes both the target and the detection medium. The unique concept of the detector –without gas amplification - is based on the experience obtained with the first-generation active target setup IKAR used in previous experiments at GSI, but is extended with respect to a larger variety of reactions, much higher beam rates and heavier beams of nuclei up to uranium. The design is proved during two test experiments at CERN and new advanced large-size active target detector is under construction. Once ready, it will be used for the Proton Radius Measurement together with AMBER collaboration at CERN and thus commissioned for the experiments within the R3B setup at FAIR. Details of the operational principles and detector construction will be given.

Presenter: KISELEV, Oleg (GSI) Session Classification: Parallel III - DTS