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Front-end electronics and mechanical design of the HGND for BM@N experiment

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High Granularity (time-of-flight) Neutron Detector (HGND) is the newest addition to the BM@N (Barionic Matter (at) Nuclotron) experiment, designed to identify neutrons and to measure their energies in heavy-ion collisions at ion beam energies up to 4AGeV. This work covers the mechanical design, developed to host ~2000 individual scintillatior cells with a size of 40x40x25 mm3, together with their readout electronics, data gathering equipment as well as power and monitoring devices. This work also includes a discussion on the design of the front-end analog electronics, responsible for photo-electronic conversion, based on the EQR15 series SiPMs, and implementation of the Time-over-Threshold (ToT) conversion.

Section

Design of new experimental facilities

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