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Beam Tracking with Micromegas & Wire Chambers in Secondary Electron Detection Configuration

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For nuclei identification purposes at the focal plane of S3, new experimental area of SPIRAL2 at GANIL, it is necessary to reconstruct the trajectories of the nuclei. Classical tracking detectors in beam would generate a lot of angular and energy straggling due to their thickness. One solution could be the use of Se-D (Secondary electron Detection). It consists of only a thin emissive foil in beam with a low pressure gaseous detector off-beam to detect the secondary electrons ejected from the foil. Moreover, this type of detectors could also be used for classical beam tracking at low energy, or for example at NFS (GANIL) for the FALSTAFF experiment to reconstruct Fission Fragments trajectories. Several low pressure gaseous detectors (wire chambers and micromegas) have been constructed and tested since 2008. High counting rate capabilities and good time resolution, obtained in previous tests, convinced us to make a new big 2D prototype wire chamber and a 2D bulk micromegas at low pressure. For the first time, spatial resolution of the micromegas at low pressure was measured. Different tests have been done in order to characterize time and spatial properties of both prototypes.

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