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A wide energy range neutron spectrometer for fusion experiments or safety diagnostics applications

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From the heart of stars to laboratories, plasmas constitute one of the major objects of the physics in many research institutes. Very big research infrastructures aim at big advances in the understanding of the physics of plasmas. Some fields of application of science, as inertial confinement fusion experiment or Magnetic confinement fusion for energy, produce very energetic particles that can create nuclear fusion reactions. Many of these reactions lead to the creation of very fast neutrons.

Detection of very fast neutrons remains also a challenge for particle accelerators safety diagnostics (beam loss monitor ...).

We developed a new wide energy neutrons detector able to work in a large gamma background. This concept is based on a very fast electronics associated to a Micromegas detector and a charged particle converter. The detector can be configured according to energy spectrum of neutrons, it can sustain very high flux with a good efficiency

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