

Abstract Submitted
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Measurements of Energetic Ions injected by Tangential Neutral Beam Injectors Using a Hybrid Probe KENICHI NAGAOKA, MITSUTAKA ISOBE, National Institute for Fusion Science, KOUJI SHINOHARA, Japan Atomic Energy Research Institute, MASAKI OSAKABE, KEISUKE MATSUOKA, SHOICHI OKAMURA, National Institute for Fusion Science, CHS TEAM — Understanding of energetic ion behavior is one of the most important problems for burning plasmas, for example ITER. So far, most experimental researches for energetic ion confinement have been limited at peripheral region of the core plasmas. We will propose the new technique to measure energetic ions in the core plasma, and discuss the first results of the demonstration to measure energetic ions injected by neutral beam injectors (NBI) in the compact helical system (CHS). The Langmuir probe including thermocouple, which is named hybrid probe, is a directional probe limiting the ion collecting surface. The difference of co- and counter-streaming ion flux measured by the hybrid probe is considered to be dominated by energetic ion component in NBI heated plasmas, while it is generally utilized to measure ion flow velocity in plasmas. The demonstration of this method has been performed in two plasmas; one is neutral beam modulation and the other is a discharge with MHD bursts excited by energetic ions. The results of hybrid probe measurements have been compared with a neutral particle analyzer.

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