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**3D Boundary Identification of Stellarator Plasma Using Cauchy Condition Surface** YASUHIRO SUZUKI, Natl Inst Fusion Science-Toki — This presentation deals with the new way of the 3D equilibrium reconstruction. For the reconstruction of the stellarator plasma, the identification of the sophisticated 3D plasma boundary shape is a critical issue. Traditionally, the inverse equilibrium calculation such as EFIT was conducted. In this presentation, we apply the "Cauchy Condition Surface (CCS) method" based on the Boundary Element Method (BEM) using the magnetic diagnostics only. The CCS method was applied to a tokamak, JT-60U, plasmas, and succeeded for reconstructing the plasma boundary shape accurately and fastly. We extended the CCS method to the 3D configuration. We already tested the 3D CCS method to a stellarator using synthetic magnetic diagnostics and succeeded in the reconstruction of the 3D plasma shape. In this presentation, we discuss the reconstruction based on the experimentally obtained magnetic signal.

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