

## Development of the Collective Thomson Scattering System in KAERI

박민, 김선호, 안찬용, 김성규

한국원자력연구원

Collective Thomson scattering (CTS) system is being developed in KAERI based on high power gyrotrons. CTS is a promising diagnostic method to measure fast ion distributions and potentially the fusion product alpha particles in magnetically confined plasmas. By utilizing millimeter-waves from high power gyrotrons as a probing beam, spatially and temporally resolved 1-D ion velocity distributions can be obtained from the scattered radiation with less scattering geometrical constraints. The pulse modulation of gyrotrons enables to separate scattering signal from ECE background noises. The feasibility was assessed with the calculation of spectral density functions under the condition of KSTAR plasmas. Further CTS system requirements are also discussed.

**Keywords:** Thomson scattering, Fast ion, Tokamak