Self-consistent time series tracking for phase difference and improved density profile reconstruction scheme – Boseong Kim

Motivations

- The KSTAR FMCW reflectometer for the density profile has suffered distortions and jitters/jolts from non-stationary AM-FM and a highly noisy environment.

- It is necessary to develop robust tracking phase difference methods for density profile reconstruction.

Results

- Novel self-consistency as a criterion for avoiding abnormal phase difference is developed, and the Viterbi algorithm using it shows possibilities of probabilistic sequential decoding approaches.

Challenges

- We should apply more complex machine learning techniques.

- It still requires a full density reconstruction scheme.