

# The design of a KSTAR FM reflectometer

Seong-Heon Seo

*NFRI, Deajeon, Korea*

shseo@nfri.re.kr

An FM reflectometer has been developed to measure the density profile of the KSTAR tokamak. It operates in X-mode in the frequency ranges of 33-50 GHz and 50-75 GHz. Phase information is obtained by digitizing the mixer output directly. The microwave antennas are located outside of a vacuum window to avoid interference with an interferometer beam line. Therefore, some signal processing will be needed to remove the noise caused by the reflection at the window. In this paper, the design and the system characteristics are represented. The calibration experiments and the signal processing techniques are also explained. The reflectometer will operate in the 2<sup>nd</sup> campaign of the KSTAR experiments scheduled to start September 2009.