3-D measurement of KSTAR electron density by interferometers

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KSTAR implemented 3 interferometer systems which are millimeter wave interferometer (MMWI), far infrared interferometer (FIRI) and two color interferometer (TCI). FIRI uses 118.8 micrometer methanol lasers and TCI consists of CO2 laser and HeNe laser. The 3 interferometer systems provide measurement and analysis of three dimensional evolution of electron density which includes MHD and transport phenomena. One example is the measurement of the giant electron density peaks after ELMs. The formation process of the boundary density peaks is analyzed by two different interferometer measurements and other KSTAR diagnostics. The detail configurations and development of the three interferometer systems and the important physics results are presented.