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## 6.11 High temperature measurement using Neon-like Xenon lines on X-ray crystal spectrometers on EAST

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A two-crystal spectrometer system has been implemented in the EAST tokamak to simultaneously measure high- and low-temperature plasma regions using He- and H-like Argon spectra. But for future devices like ITER and CFETR, the Ar ions become fully stripped and the intensity of the H-like lines weaken significantly at high temperatures ( $T_e > 5$  keV). With increasing auxiliary heating power on EAST, the core plasma temperature could also reach 5 keV and higher. In such conditions, the use of a Xenon puff becomes an appropriate choice for both ion-temperature and flow-velocity measurements. A new two-crystal system using a He-like Ar crystal ( $2d=4.913$  Å) and a Ne-like Xe crystal ( $2d=6.686$  Å) has been deployed on a poloidal XCS spectrometer. While the He-like Argon spectra will be used to measure the plasma temperature in the edge plasma region, the Ne-like Xenon spectra will be used for measurement in the hot core. The new crystal arrangement allows a wide temperature measurement ranging from 0.5 to 10 keV or even higher, being the first tests for burning plasmas like ITER and CFETR. Preliminary result of lab-tests, Ne-like Xenon lines measurement and a new calibration procedure using a Ti x-ray tube will be presented.

Primary author(s) : LYU, Bo (Institute of Plasma Physics, Chinese Academy of Sciences)

Co-author(s) : CHEN, Jun (School of Nuclear Science and Technology, University of Science and Technology of China); DELGADO-APARICIO, Luis (Princeton Plasma Physics Laboratory); WANG, Qiuping (National Synchrotron Radiation Laboratory, University of Science and Technology of China); DU, Xuewei (National Synchrotron Radiation Laboratory, University of Science and Technology of China); SHEN, Jin (National Synchrotron Radiation Laboratory, University of Science and Technology of China); YANG, Xinshuai (Institute of Plasma Physics, Chinese Academy of Sciences); WANG, Fudi (Institute of Plasma Physics, Chinese Academy of Sciences); FU, Jia (Institute of Plasma Physics, Chinese Academy of Sciences); LI, Yingying (Institute of Plasma Physics, Chinese Academy of Sciences); BITTER, Manfred (Princeton Plasma Physics Laboratory); HILL, Kenneth (Princeton Plasma Physics Laboratory); LEE, Songgon (National Fusion Research Institute); SHI, Yuejiang (Department of Nuclear Engineering, Seoul National University); WAN, Baonian (Institute of Plasma Physics, Chinese Academy of Sciences); YE, Minyou (School of Nuclear Science and Technology, University of Science and Technology of China)

Presenter(s) : LYU, Bo (Institute of Plasma Physics, Chinese Academy of Sciences); CHEN, Jun (School of Nuclear Science and Technology, University of Science and Technology of China); DELGADO-APARICIO, Luis (Princeton Plasma Physics Laboratory); WANG, Qiuping (National Synchrotron Radiation Laboratory, University of Science and Technology of China); DU, Xuewei (National Synchrotron Radiation Laboratory, University of Science and Technology of China); SHEN, Jin (National Synchrotron Radiation Laboratory, University of Science and Technology of China); YANG, Xinshuai (Institute of Plasma Physics, Chinese Academy of Sciences); WANG, Fudi (Institute of Plasma Physics, Chinese Academy of Sciences); FU, Jia (Institute of Plasma Physics, Chinese Academy of Sciences)

of Sciences); LI, Yingying (Institute of Plasma Physics, Chinese Academy of Sciences); BITTER, Manfred (Princeton Plasma Physics Laboratory); HILL, Kenneth (Princeton Plasma Physics Laboratory); LEE, Songgon (National Fusion Research Institute); SHI, Yuejiang (Department of Nuclear Engineering, Seoul National University); WAN, Baonian (Institute of Plasma Physics, Chinese Academy of Sciences); YE, Minyou (School of Nuclear Science and Technology, University of Science and Technology of China)

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