

CPAF LINEAR DEVICE FOR PLASMA MATERIALS EXPOSURE EXPERIMENTS

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Abstract

As TINT has been working very diligently to welcome the first Thailand tokamak on its head-quarter office in Ongkharak, Nakorn Nayok, Thailand, it has also been working in collaboration with Walailuk University, Electricity Authority of Thailand (EGAT) under Consortium for Plasma and Nuclear Fusion (CPaF) to develop the plasma linear device. This linear device has a helicon plasma source generating with RF wave under 0.1-Tesla magnetic field. An operation in steady state mode can deliver high plasma density in the order of 10^{16} - 10^{19} m⁻³ with electron temperature of one to eight electron volts. Ion beam can be easily obtained from the device with ion energy in the range of 10-300 eV and beam diameter of four centimetres. The device is also equipped with Langmuir probe and optical emission spectrometer for plasma characterisation. The device and facility is open for plasma materials interaction evaluation. Some preliminary results have been obtained. Applications to other field than fusion, like plasma hardness testing for parts or device in space or satellite are also foreseen.