

Abstract Submitted  
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**Edge Biasing of SINP-Tokamak Plasma in High-Q Regime**<sup>1</sup> RA-BINDRANATH PAL, DEBJYOTI BASU, Saha Institute of Nuclear Physics, 1/AF Bidhannagar Kolkata - 700064 India — In high  $q$  regime ( $q_{edge} = 5 - 7$ ) of SINP-TOKAMAK [an iron-core device having major and minor radii of 30 and 7.5 cm, respectively and  $B_{toroidal} = 1.2$  Tesla] fast edge biasing experiment is carried out introducing a Molybdenum electrode of 5mm in diameter, radially positioned at 7.0 cm. Biasing seems to cause a change in plasma current density profile forming a negative shear in the region 6.4-6.9 cm and it leads to better confinement and longer duration of plasma current as was observed<sup>2</sup> also in very low  $q$  (VLQ) regimes of the same machine. The electrode current drawn in this regime is about 5-10 amp. Lowering of  $H_{\alpha}$  signal and loop voltage is also observed indicating better confinement, independently confirmed by diamagnetic loop too. On applying bias, electron density and temperature profile develop sharper gradient near the edge. Interestingly, electrostatic and magnetic fluctuations, observed by inserting electric and magnetic probes in the edge plasma, are suppressed in the inner region (6.4-6.8 cm) in the frequency range of 30-70 kHz by the effect of electrode biasing.

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<sup>2</sup>Ghosh J., Pal R., Chattopadhyay P. K. and Basu D. 2007 Nucl. Fusion **47** 331

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