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Electron Energy Distribution function in a weakly magnetized expanding helicon plasma discharge NISHANT SIRSE, CLEO HARVEY, CEZAR GAMAN, BERT ELLINGBOE, Dublin City University — Helicon wave heating is well known to produce high-density plasma source for application in plasma thrusters, plasma processing and many more. Our previous study *(B Ellingboe et al APS Gaseous Electronics Conference 2015, abstract #KW2.005)* has shown observation of helicon wave in a weakly magnetized inductively coupled plasma source excited by m=0 antenna at 13.56 MHz. In this paper, we investigated the Electron Energy Distribution Function (EEDF) in the same setup by using an RF compensated Langmuir probe. The ac signal superimposition technique (second harmonic technique) is used to determine EEDF. The EEDF is measured for 5-100 mTorr gas pressure, 100 W – 1.5 kW rf power and at different locations in the source chamber, boundary and diffusion chamber. This paper will discuss the change in the shape of EEDF for various heating mode transitions.

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