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Slow wave measurement using the WVU 300 GHz collective scattering diagnostic ROBERT HARDIN, West Virginia University, EARL SCIME, ALEX HANSEN — Recent experiments in helicon plasma sources by Krämer *et al.* [2006] and Kwak *et al.* [2006] have employed mm-wave technology to investigate electron densities in a pulsed source and density fluctuations due to ion-acoustic waves, respectively. Measurement of the temporal and spatially resolved electron densities by Kramer was accomplished with a mm-wave interferometer. The ion-acoustic waves measured by Kwak employed a collective scattering system with a heterodyne detection scheme. The WVU 300 GHz quasi-optical collective scattering diagnostic, uses a homodyne detection method similar to the interferometer, designed to measure the "slow" wave. Experimental parameters observed to heat ions in the plasma edge in conjunction with theoretically calculated wave numbers associated with the slow wave, as seen in Kline *et al.* [2002], were examined for evidence of the slow wave using the mm-scattering diagnostic. Here we present initial wave number spectrum measurements of the slow wave in a helicon plasma source.
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