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Electrostatic ion cyclotron waves in a plasma with heavy negative ions¹ ROBERT L. MERLINO, SU-HYUN KIM, JONATHON HEINRICH, University of Iowa, MARLENE ROSENBERG, University of California at San Diego — Results of a laboratory study of electrostatic ion cyclotron waves (EIC) in a plasma containing K^+ positive ions (39 amu), electrons, and $C_7F_{14}^-$ (350 amu) negative ions are presented. The negative ions were produced in a single-ended Q machine in which C_7F_{14} was introduced [1]. Excitation of the fundamental and higher harmonic light and heavy ion EIC modes were observed. The presence of negative ions has a significant effect on the excitation of the light ion EIC modes, with higher harmonics excited as the fraction of negative ions increases. The results are compared with those of linear kinetic theory of current-driven EIC waves in a plasma containing heavy negative ions. [1] S-H. Kim and R. L. Merlino, Phys. Rev. E 76, 035401(R) (2007).

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