Abstract Submitted
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Progress on Development of Low Pressure High Density Plasmas on the Helicon Plasma Experiment (HPX)[1] PHILLIP AZZARI, JORDAN HOPSON, PAUL CRILLY, OMAR DUKE-TINSON, JACKSON KARAMA, RICHARD PAOLINO, EVA SANDRI, JUSTIN SHERMAN, ERIN WRIGHT, JOHN FRANK, JEREMY TURK, U. S. Coast Guard Academy — HPX Plasmas are created by imparting directed energy into a Pyrex tube preloaded with Ar gas at fill pressures on the order of 10^4 mTorr utilizing an RF power supply and matching box that can deliver about 250 W of power in the 20 MHz to 100 MHz frequency range. It has been demonstrated [1] that a uniform magnetic field in lower energy level plasmas can facilitate a decrease in inertial effects, which promotes energy conservation within the plasma to provide the necessary external energy in the plasma's magnetic field required to reach the Helicon Mode. This uniform magnetic field will be created by a set of electromagnets capable of producing 1000 gauss. These electromagnets, provided by Princeton Plasma Physics Laboratory will facilitate W-mode production. After reaching the Helicon Mode, the plasma must be forced along the Pyrex tube by an acceleration coil in order to come in contact with several diagnostic probes and to be propelled into a viewing port so Thompson Scattering can be conducted. The progress on the development of the acceleration coil and electromagnets will be presented.

[1] K. Toki, et al., Thin Solid Films 506-507 (2005).

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