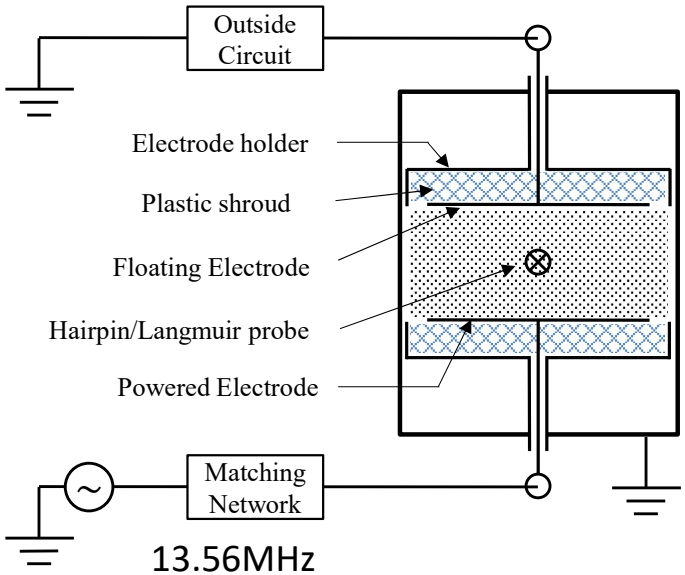
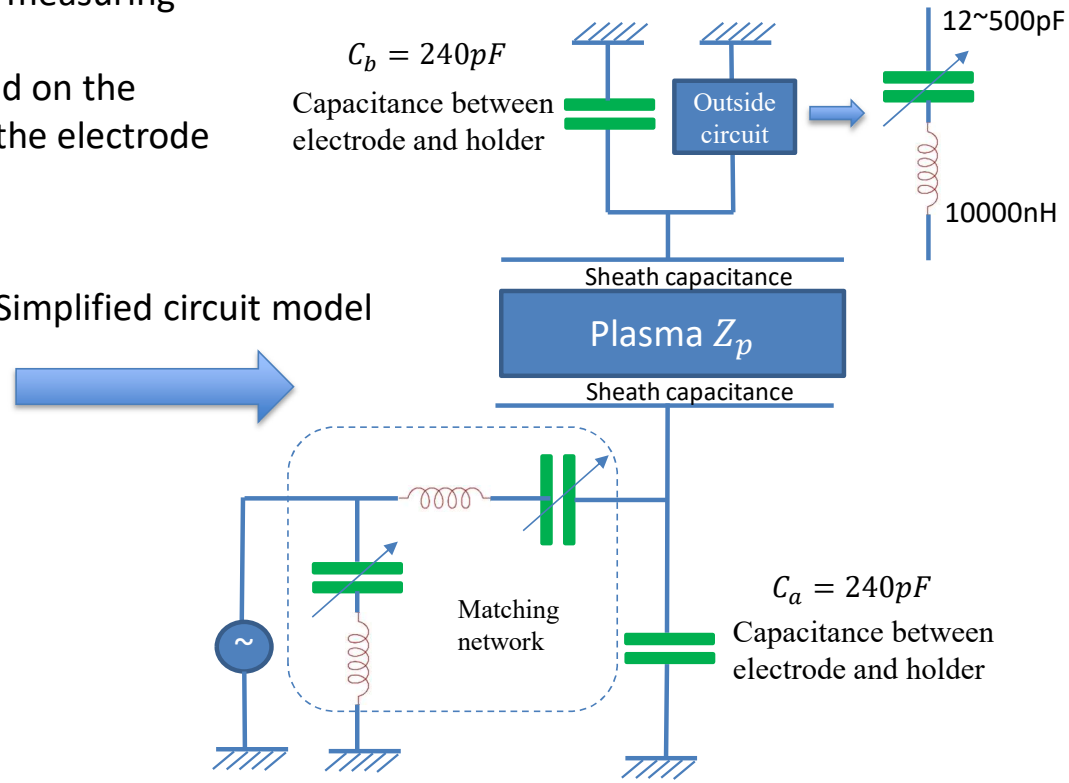
Experiment setup

- Electron density n_e is measured by hairpin probe
- Plasma potential V_p and T_e are taken by Langmuir probe
- A V/I probe is connected to the bottom electrode, measuring root mean square RF voltage V_{rms}
- A retarding field energy analyzer (RFEA) is mounted on the bottom electrode, which gives the DC self-bias of the electrode and ion velocity distribution functions (IVDFs).



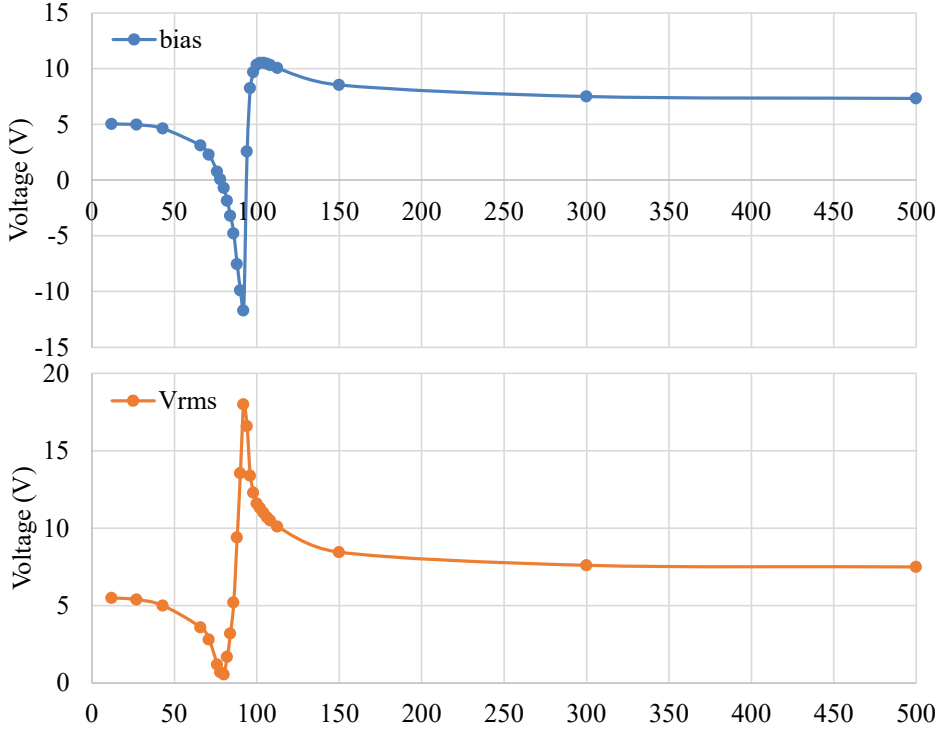
Simplified circuit model



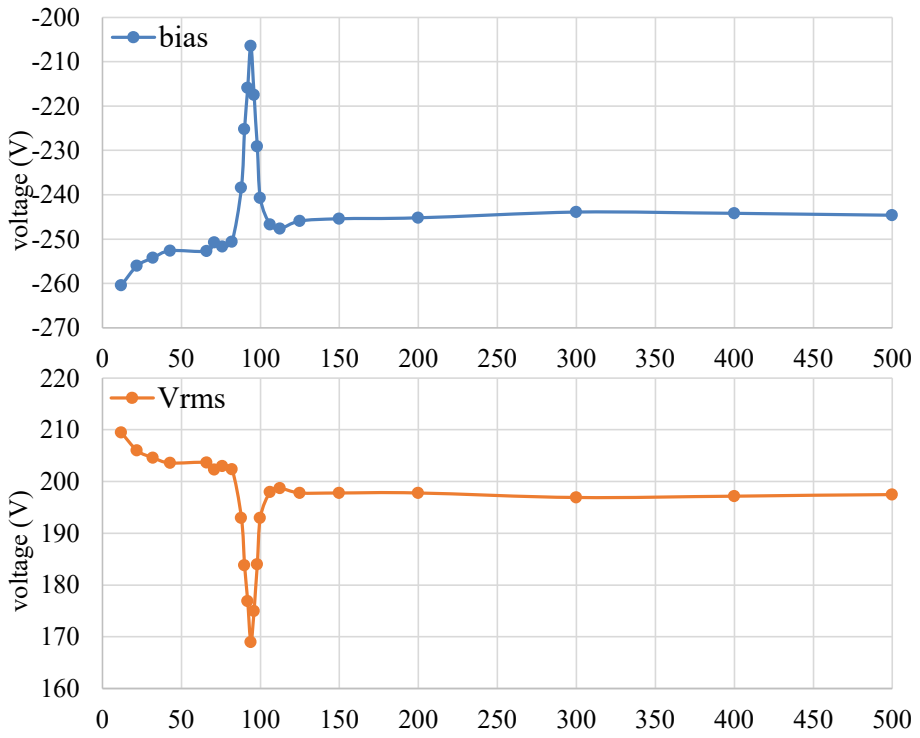
Analysis of constant density cases – 20mTorr Argon

NC STATE UNIVERSITY
Department of Nuclear Engineering

Floating electrode-Constant density $3.6 \times 10^9 cm^{-3}$



Powered electrode-Constant density $3.6 \times 10^9 cm^{-3}$



- DC self-bias of powered electrode can be increased by 20%
- DC self-bias of floating electrode can be decreased by 200% (from 10V to -10V)
- Sheath of floating electrode shares more delivered power at resonance.