

## Plasma rotation in the PKU Plasma Test Device

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### Abstract

Some preliminary results of plasma rotations in a linear plasma experiment device, PKU Plasma Test device (PPT), are shown in this paper. PPT has a cylindrical vacuum chamber with  $\phi 500$  mm $\times$ 1000 mm, and a pair of Helmholtz coils which can generate cylindrical or cusp magnetic geometry with magnitude from 0 to 2000 Gauss. Plasma was generated by a helicon source and the typical density is about  $10^{13}$  cm<sup>-3</sup> for the Argon plasma. Some Langmuir probes, magnetic probes, and one high-speed camera are setup to diagnostics. It's shown that the mode structures of rotational plasmas are typically as: the poloidal wavenumber  $m=1-10$  (as shown in Figure 1), and the rotation frequency is about several kHz. Magnetic fluctuations exist during the plasma rotation processes with both cylindrical and cusp magnetic geometries, respectively. These preliminary results show that the plasma rotations might be related to some interesting electromagnetic processes.

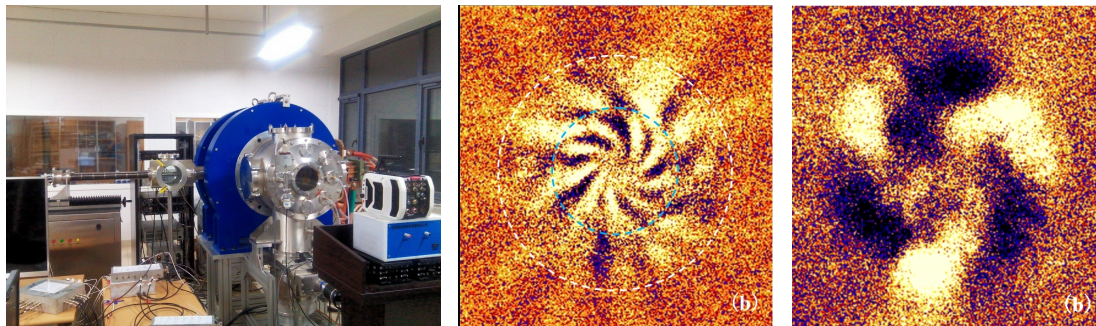


Figure 1: Overview of PPT device and plasma rotations. left: a photo of PPT device; Middle: plasma rotation in the linear configuration; Right: Plasma rotation in the cusp configuration.

### References

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