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The Progress of Vlasov Microwave Launcher for High Power Operation

The efficiency of the microwave-plasma coupling is a key issue to enhance the performance of electron cyclotron resonance ion sources (ECRISs) in terms of charge states and extracted currents. The coupling properties are directly affected by the microwave injection scheme, especially for the high frequency(f >20 GHz) and high power（P>5 kW) ECR ion sources. Based on the Vlasov launcher concept, we proposed a microwave injection scheme for ECRIS that can move the launcher on line. The power distribution inside the plasma cavity is optimized by online adjusting the position of the Vlasov launcher, so as to improve the performance of the ion source at high power. The preliminary test results and typical problems are presented in this article.

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