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Ion Cyclotron Resonance Heating (ICRH) systems for the Keda Mirror with AXisymmetry (KMAX)

Ming Liu, Hongshen Yi, Munan Lin, Yanpeng Wang, Peiyun Shi, Jian Zheng, and Xuan Sun[a)]

Department of Modern Physics, University of Science and Technology of China, Hefei, 230026, China

Abstract:

In this presentation, we describe the engineer work involved in constructing two ion cyclotron resonance heating (ICRH) systems for use in the KMAX (Keda Mirror with AXisymmetry) tandem mirror experiment. Because they offer an effective and robust heating method, ICRH systems have been widely used in a variety of plasma experiments. The goal for our system is to heat the hydrogen plasma contained in the central cell using the fundamental ion cyclotron frequency. Both systems can deliver radiofrequency (RF) power of ~120 kW with adjustable operating frequencies that are tuned to be slightly lower than their local ion cyclotron frequencies. Two types of antenna are installed in the central cell in an attempt to launch both slow and fast waves. The heating mechanism is reliant on the magnetic beach effect for slow wave. Moreover, preliminary heating results will be presented.