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Microwave induced electron losses from an ECR Ion Source

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To enhance high charge state ion beam production it is imperative to maximize the electron confinement time of the heated electron populations of an Electron Cyclotron Resonance Ion Source (ECRIS). A key loss mechanism for heated electrons are induced by the injected microwaves which heats the plasma electrons of an ECRIS. This electron loss mechanism is thought to limit ultimate source performance. With this investigation a number of plasma diagnostics were combined to study this plasma process. Here we will report on the results of preliminary measurements on the JYFL 14 GHz ECRIS.

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