

Abstract Submitted
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A New HRIBF Electron Beam Plasma Ion Source¹ RONALD GOANS, KEN CARTER, BOYCE GRIFFITH, CHARLES REED, Oak Ridge Associated Universities — The particle-surface interactions that dominate the effusion of particles through the target/ion source system (TISS) typically require very high temperatures to reduce the release time, particularly for the less volatile species. This high- temperature environment, however, may not be conducive to the efficient formation and transport of molecular sidebands. To investigate and improve the operating conditions necessary to optimize the molecular-sideband technique at the Holifield Radioactive Ion Beam Facility (HRIBF), the standard HRIBF Electron Beam Plasma (EBP) ion source design was modified to allow independent and controlled heating of the transfer line and cathode. The modified TISS was built and the modifications have been characterized. While maintaining the cathode temperature necessary for normal operation of the EBP ion source, the transfer line temperature was varied from about 1300 °C to 2000 °C for a target temperature held at 1900 °C. A complete overview of the new target/ion source parameters will be presented.

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Ronald Goans
Oak Ridge Associated Universities

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