

**THE DESIGN OF THE RF CAVITY FOR THE HEAVY ION STORAGE RING
FOR ATOMIC PHYSICS***

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S. W. MOSKO¹

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*Oak Ridge National Laboratory, Post Office Box 2008, Oak Ridge, Tennessee
37831-6368*

An rf cavity and drive system have been designed for the proposed "Heavy Ion Storage Ring for Atomic Physics," HISTRAP, at Oak Ridge. A peak accelerating voltage of 2.5 kV per turn is required with a continuous tuning range from 200 kHz through 2.7 MHz. A single-gap, half-wave resonant configuration is used with biased ferrite tuning. The cavity structure is completely outside of the beam line/vacuum enclosure except for a single rf window that serves as an accelerating gap. Physical separation of the cavity and beam line permits in situ vacuum baking of the beam line components at 300°C. A prototype cavity was designed, built, and tested. [1] Development of frequency synthesizer and tuner control circuitry is under way.

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