CONF-901116--7

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

CONF-901116--7

DE91 000625

S. W. MOSKO[1]

*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.



* Research sponsored by the U.S. Department of Energy under contract DE-AC05-84OR21400 with Martin Marietta Energy Systems, Inc.

1 In collaboration with D. T. Dowling and D. K. Olsen, Physics Division, Oak Ridge National Laboratory.