

**A 35 MHz Rebuncher RF Cavity for ISAC at TRIUMF\***, J. CORLETT, D. LI, LBNL; A. MITRA, TRIUMF - We report a conceptual design of a 35 MHz rebuncher RF cavity for a radioactive beams facility called ISAC (Isotope Separator and ACcelerator) at TRIUMF in Canada. The 35 MHz rebuncher cavity will be operating at CW mode to preserve the beam intensity. Due to the space limitations, a folded quarter-wavelength structure with two accelerating gaps may be favored although other structures have been considered. MAFIA simulations show that the folded quarter-wavelength cavity has a 1.46 M-Ohm shunt impedance at  $\beta = 0.018$  and quality factor of 19,000. To ensure the mechanical stability of the inner conductor, ceramic support structures and possible RF windows have been considered. RF power losses on the ceramic materials as well as on the inner conductor have been studied carefully to find the best locations to place the supports, windows and possible cooling channels. Discussions on the tuner and coupling loop designs will also be presented.

\* This work was supported by the U.S. Department of Energy under contract No. DE-AC03-76SF00098