Simulation of the Effects of Longitudinal Broad-Band Impedances on an Electron-Cooled Bunched Ion Beam, M. TAKANAKA, RIKEN; T. KATAYAMA, CNS - An electron-cooled bunched ion beam suffers from forces induced through the resistive-wall and the reactive broad-band impedances of the vacuum chamber as sources of instabilities. The effects of the longitudinal impedances are simulated on the space-charge dominated beam below the transition energy. The dependence of the effects on the beam current is described.