

**Beam Loading Experiment with Short Bunched Electron Beams for New Type of Accelerating RF System of High Intensity Proton Synchrotron,**  
Y. HASHIMOTO, H. KOBAYASHI, Y. MORI,  
C. OHMORI, S. OHSAWA, K. SAITO, A. TAKAGI,  
M. YAMAMOTO, T. YAN, M. YOSHII, KEK - Beam loading compensation for rf system is one of the most difficult parts of high intensity proton synchrotron such as the JHF 3 GeV booster and the 50 GeV main ring. To investigate the effects, beam loading test experiment with an intense electron beam has been carried out. The wake voltages induced by an actual electron beam at the accelerating gap of rf cavity have been measured. The electron beam used in the experiments is modulated with the frequency of about 3 MHz and the pulse length can be variable in due consideration of the circulating beam of the JHF synchrotron. Achievable peak current of the electron beam is about 5 A. The beam loading compensation has also been tried.