

Phase Space Painting of Charge Exchange Injection in the KEK Booster, T. ADACHI, Y. ARAKIDA, Y. IRIE, K. KTAGAWA, S. MACHIDA, Y. MORI, I. SAKAI, KEK - Protons are injected into the KEK booster by means of charge exchange injection. Phase space painting of charge exchange injection in horizontal plain has been carried out using two fast orbit bump magnets, which are placed at the upstream and the down stream positions respectively. At each position, the phase of betatron oscillation lead and lags by $\pi/2$ from the injection point. Beams are injected gradually from the center of phase space to the outside by the shift of closed orbit, which is controlled by these two orbit bump magnets. The optimum gradient of bump field is approximated by mixed waveform power supply, which can form the nonlinear waveform of excitation current. The density distributions in phase space which depend upon waveforms of the orbit bump magnets were measured, and the increase of the booster beam intensity has been studied.