

The Observation of Electron Beam Size Variation by Utilizing the Nonlinearity of a Fast Photodiode,
I.C. HSU, T.I. CHEN, C.I. YU, C.C. CHU, National Tsing Hua Univ. and SRRC, TAIWAN - In the experimental study of accelerator physics, a turn by turn monitoring of the beam profile can provide very unique information. In this paper, we proposed a method which may measure a turn by turn electron beam profile through its synchrotron radiation by using a fast photodiode. Here, we utilized the non-linearity of the response of the photodiode-detector. In this paper, we will present the experimental results. We had examined this idea by using a modulated He-Ne laser to simulate the synchrotron radiation light. The results agree with our computer simulation results. The results of measuring the beam size variation of the electron beam in the storage ring of TLS (Taiwan Light Source) will be presented and discussed.