

**Measurement of Beam Decoherence due to the Octupole Magnetic Fields at the Photon Factory Storage Ring, Y. KOBAYASHI, KEK-PF** - The decoherence behavior of the beam centroid motion after a transverse kick was examined with exciting of the octupole magnets using a turn-by-turn beam position monitor. The measurements were made at currents of 0.1 to 20 mA in the single-bunch operation mode. It is well-known that the centroid motion of the beam will decay as a result of decoherence among the betatron oscillations of the different particles when a spread in the betatron oscillation exists. The result of the measurements showed the rapid decay of the centroid motion of the beam in case of the negative polarity of the octupole magnetic fields. However, much slower decay was found in the case of the positive polarity. As a result, the decoherence behavior strongly depended on not only the strength of the octupole magnetic fields but the polarity of them.