Higher Order Formula for Nonlinear Dispersion, K. SOUTOMEM, M. TAKAO, H. TANAKA, SPRING-8 - In modern circular accelerators the linear chromatic term is no longer sufficient to describe the chromatic dynamics of particle motion. The higher order effect of the dispersion is indispensable to control the momentum compaction factor precisely. The higher order formula for the dispersion is derived by means of the perturbative approach to the equation of motion. The validity of the formula is confirmed at the storage ring of SPring-8, the high brilliant light source facility.