1054-58-50   **Markus J. Pflaum*** (`markus.pflaum@colorado.edu`), University of Colorado UCB 395, Boulder, CO 80305, and **Hessel Posthuma** and **Xiang Tang**. *Higher Index Theorems for Orbifolds.*

Given a symplectic orbifold and a deformation quantization on it, we prove an algebraic higher index theorem on orbifolds by computing the pairing between cyclic cocycles and the K-theory of the formal deformation quantization. As an application, we obtain the analytic higher index theorem of Connes-Moscovici and its extension to orbifolds. (Received August 28, 2009)