

The PMS Stars and Initial Mass Function of NGC 2264

Byeong-Gon Park^{1,2}, H. Sung¹, M.S. Bessell³, and Y.H. Kang²

¹Korea Astronomy Observatory, Young-Cheon, 770-820, Korea

²Department of Astronomy and Atmospheric Sciences, KNU, Taegu, 702-701, Korea

³Research School of Astronomy & Astrophysics, ANU, Private Bag, Weston Creek,
ACT 2611, Australia

UBVRI and $H\alpha$ CCD photometry have been performed in the southern region of NGC 2264 around the cone nebula. A nearly complete set of pre-main sequence (PMS) members in the cluster has been made from the compilation of $H\alpha$ emission stars identified in this study plus those selected in previous investigations together with stars with X-ray emission. Using the HR diagram, we tested a set of four PMS evolution models based on the PMS age and age spread estimate for the cluster and the mass-age relationship amongst individual stars. The resultant initial mass function (IMF) is in good agreement with the field star IMF of the Solar neighborhood, with an IMF slope $\Gamma = -1.7$ in the mass range $0.3 \leq \log m \leq 0.8$.