Progress Report on the Survey of New Globular Cluster Candidates in M31

Sang Chul Kim ¹, Myung Gyoon Lee ², Doug Geisler ³, Juan Seguel ³, Ata Sarajedini ⁴ William E. Harris ⁵

¹Department of Astronomy, Seoul National University ²Astronomy Program, School of Earth and Environmental Sciences, Seoul National University

³Departamento de Fi'sica, Grupo de Astronomi'a, Universidad de Concepcio'n, Casilla 160-C, Concepcio'n, Chile

⁴Astronomy Department, Wesleyan University, Middletown, CT 06459, USA ⁵Department of Physics and Astronomy, McMaster University, Hamilton, ON L8S 4M1, Canada

M31 is the nearest spiral galaxy in the Local Group and contains more globular clusters(GCs) than the Milky Way Galaxy. Therefore, M31 is an ideal target to study the globular cluster system (GCS) of a spiral galaxy. Most of previous surveys of the GCs in M31 were based on wide field photographic observations and a few surveys based on CCD imaging were all limited to small areas in M31. We have performed wide field $(23.2' \times$ 23.2') CCD photometric survey of the GCs in M31, using Kitt Peak National Observatory (KPNO) 0.9m telescope. Our data cover a region of $\sim 3 \times 3$ deg² centered on M31. We used Washington C, M, and T_1 filters which are very efficient to select GC candidates. Using color-magnitude diagrams, color-color diagrams, morphological classifiers based on radial moments, differences between aperture magnitudes and point spread function fitting magnitudes, and visual inspections of the images, we have found more than 600 possible GC candidates with $T_1 \leq 20$ mag ($V \leq 20.5$ mag) in M31. Survey procedures and preliminary results of our survey will be presented.