**Part 2&3, Fall-Term Observing Project Rubric - PHYS 4270 / 5390**

**Total: 50 marks**

General [6]:

* [1] Title page
* [1 ] Partners name(s)
* [1 ] Cosmos directory provided
* [2] Overall quality (e.g., neat, typed)
* [1] Conclusions/summary

Introduction [4]:

* [4] Basic motivation and information on M34 / Open Clusters

Observations [14]:

* [2] Finding chart (inverse colour map; name of cluster, angular size, cardinal directions)
* [4] Log of observations (date, time, weather conditions; exposure times and durations; CCD temperature, times given in EST and UT; MJD for local midnight; LST, HA, Airmass for all observations but not calibrations)
* [2] Own data
* [2] Quality and quantity of data (image quality; *B*, *V* and *R* data)
* [4] Calibration data (dark sequences and flat fields with >20,000 counts or ADU)

Reductions and Calculations [26]:

* [3] Average Bias+Dark subtracted, normalized Flat constructed and divided into data
* [1] Shifts measured, listed and made (possibly after justified removal of bad data)
* [2] Curve of growth, aperture correction
* [3] Aperture photometry (instrumental magnitudes) using *qphot* and calibrated using all *reliable* secondary standards
* [3] Sky brightness measured in each filter and given in mag/arcsec^2
* [2] Calculated dark current rate (e-/s/px) and bias level (e-/px)
* [1] Calculated focal plane scale (arcseconds/pixel)
* [2] Calculated position angle of CCD columns relative to N/S
* [4] Provided positions and magnitudes for at least 30 (non-standard) stars
* [3] Show CMDs (*V* vs. *B-V*) and (*R* vs. *V-R*) and (*B-V*) vs (*V-R*) colour-colour diagram]
* [2] Estimate of turnoff and cluster age (with reference(s))