RESEARCH OPPORTUNITIES WITH SMALL TELESCOPES

Stephen J. Edberg
Jet Propulsion Laboratory
California Institute of Technology

The recent explosive improvements in hardware and software make astronomical research with small telescopes easier and allow researchers to address deeper problems. Commercially available computer-controlled telescopes marketed to amateur astronomers can be aimed precisely at a target in seconds, saving valuable observing time. Charge coupled device (CCD) detectors now permit telescopes in the 20 - 40 cm size range to reach magnitude 18 or fainter in a few minutes. Associated software packages control the camera and filter wheel. Other software packages permit image processing, bringing out details otherwise difficult to unveil, and measurements of positions, brightnesses, and intensity profiles of all the objects in the field of view.

This is not to say that the latest and greatest electronic instrumentation is necessary to make contributions to astronomical research. There are numerous programs that require the efforts of an observer, using only eyes or common photographic emulsions, to add to our understanding of the universe.

In this presentation I will describe some of the research opportunities and the instrumentation necessary to carry them out.