

Ten Recent Enhancements To Aperture Photometry Tool

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Download Software: www.AperturePhotometry.org

Abstract

Aperture Photometry Tool is free, multi-platform, easy-to-install software for astronomical research, as well as for learning, visualizing, and refining aperture-photometry analyses. This mature software has been under development for five years, and is a silent workhorse of the NASA/IPAC Teacher Archive Research Program (NITARP). Software version 2.1.5 is described by Laher et al. in *Publications of the Astronomical Society of the Pacific*, Vol. 124, No. 917, pp. 737-763 (July 2012). Several software upgrades have been released since the publication, which include new capabilities, increased speed, more user-friendliness, and some minor bug fixes. We are currently working with Michael Fitzgerald of Macquarie University to improve the user-friendliness of the software, with the aim of integrating it into their *Space to Grow* Australian astronomy education program. Visit www.aperturephotometry.org to download the latest software version.

Ten Recent Enhancements

1. Added new Tools menu option to write selected primary-image data to a comma-separated-value file (for importing into Excel).
2. Added a new display of the color-table levels on a separate panel.
3. Added a new tool to measure the angular separation between positions on the thumbnail image, via mouse-cursor drag and release.
4. Added a new tool to overlay an aperture at user-specified coordinates (in addition to aperture overlay via mouse click).
5. Speeded-up the source-list tool with optional multithreading in its automatic mode (the allowed thread number is user-specified).
6. Added a new "Number" column to the output aperture-photometry file in order to track the input source order (multithreading reorders the output).
7. Upgraded the source-list tool to accept input source lists containing positions in sexagesimal equatorial coordinates (in addition to decimal degrees, or, alternatively, pixel coordinates).
8. Added a new decimal/sexagesimal converter.
9. Upgraded the source-list creation tool to compute the detection threshold using robust estimates of the local background and local data dispersion, where the user can select the grid and window sizes for these local calculations.
10. Modified the batch mode to optionally generate a source list.

Select Software Screenshots

The screenshots illustrate the following features:

- Main Interface:** Displays a list of sources with columns for RA, Dec, and other parameters. It includes controls for aperture size, source list, and image histogram.
- Radial Profile:** A plot showing the radial profile of a source, with parameters like radius, sky median, and source intensity.
- Curve Of Growth:** A plot showing the cumulative signal-to-noise ratio versus distance from the aperture center.
- Configuration Panels:** Various panels for setting parameters like aperture size, source list, and image histogram.

