

Announcement of a Special Issue of *Advances in Space Research* on

## **Image Processing and Analysis in Space Science**

Papers are invited for a special topic issue of *Advances in Space Research (ASR)* entitled “Image Processing and Analysis in Space Science”.

With each new lunar and planetary mission, the volume of images, topography, and other acquired data significantly increases. Therefore, advances in image processing and analysis technologies become increasingly important in lunar and planetary science. Image analysis is crucial in methods for archiving, retrieval, processing, and interpretation of large amounts of image data acquired in the visible spectrum, infrared spectrum, digital elevation map (DEM) data, and radar sounder data. Pattern recognition, machine learning, and data mining play increasingly important roles in handling diversity of features in large datasets. This special issue brings together lunar and planetary scientists with computer and engineering scientists to address issues and new directions in the applications of image processing and analysis to lunar and planetary science. This Special Issue is open to all scientists discussing new scientific challenges in image processing and analysis in lunar and planetary science. Papers addressing topics related to image processing and analysis in astronomy and astrophysics would also be welcome. Topics of interest include (but are not limited to):

- Crater detection algorithms;
- Detection of polygonal patterns, volcanoes, sand dunes, rocks and other geological features;
- Automated measurements and extraction of geological features;
- Reconstruction or refinement of digital topography data from optical images and vice-versa;
- Registration between different datasets;
- Automated calibration and normalization of multispectral and hyperspectral imagery;
- Classification (supervised and unsupervised) of reflectance spectra;
- New instruments for acquiring optical, topography and other datasets;
- New archives of optical, topography and other datasets; and
- Image processing and analysis in astronomy and astrophysics.

Papers must be submitted electronically through the EES/Elsevier Web system at <http://ees.elsevier.com/asr>. To ensure that all manuscripts are correctly identified for inclusion into the Special Issue, authors must select “**Special Issue: Imaging in Space**”, when they reach the “Article Type” step in the submission process.

Submitted papers must be written in English and should indicate full affiliation addresses for all authors. All manuscripts will be subject to a standard peer-review process, including at least two independent reviewers. There are no page limits, but the length of the paper should be appropriate to the scientific material being presented. Manuscripts should follow the general format used in ASR: ([http://www.elsevier.com/wps/find/journaldescription.cws\\_home/644/authorinstructions](http://www.elsevier.com/wps/find/journaldescription.cws_home/644/authorinstructions)).

The **deadline for submission is 31 August 2012**. Manuscripts will be accepted on a paper-by-paper basis and available on-line with a DOI a few days after acceptance. Contributors to this issue will have an opportunity to purchase individual issues once the issue is finalized. All articles will be typeset at no cost to the author, while a nominal fee will be charged to the authors for color figures in print, but not in the electronic version.

Dr. Christian Wöhler ([christian.woehler@tu-dortmund.de](mailto:christian.woehler@tu-dortmund.de)) is the Guest Editor for this Special Issue. Authors will be regularly informed on the progress of this Special Issue by email until its final publication. Questions can be directed to Dr. Christian Wöhler or to the Co-Editor for Special Issues, Dr. Peggy Ann Shea ([ssrc@msn.com](mailto:ssrc@msn.com)). The pre-submission questions regarding topics-of-interest can also be directed to the additional organizers for this Special Issue, Dr. Wei Ding ([ding@cs.umb.edu](mailto:ding@cs.umb.edu)) and Goran Salamunićcar ([gsc@ieee.org](mailto:gsc@ieee.org)).