A Screen Shot of the **WGM Temperature Tracker 2.3** graphic interface.

method of such stabilization to be implemented, which is immune to a variety of effects that mask the temperature variation.

WGM Temperature Tracker 2.3 (see figure) is a LabVIEW code developed for dual-mode temperature stabilization of WGM resonators. It has allowed for the temperature stabilization at the level of 200 nK with one-second integration time, and 6 nK with 10,000-second integration time, with the above room-temperature set point.

This software, in conjunction with the appropriate hardware, can be used as a noncryogenic temperature sensor/controller with sub-micro-Kelvin sensitivity, which at the time of this reporting considerably outperforms the state of the art.

This work was done by Dmitry V. Strekalov of Caltech for NASA's Jet Propulsion Laboratory. Further information is contained in a TSP (see page 1).

This software is available for commercial licensing. Please contact Daniel Broderick of the California Institute of Technology at danielb@caltech.edu. Refer to NPO-48306.

Large Terrain Continuous Level of Detail 3D Visualization Tool

NASA's Jet Propulsion Laboratory, Pasadena, California

This software solved the problem of displaying terrains that are usually too large to be displayed on standard workstations in real time. The software can visualize terrain data sets composed of billions of vertices, and can display these data sets at greater than 30 frames per second.

The Large Terrain Continuous Level of Detail 3D Visualization Tool allows large terrains, which can be composed of billions of vertices, to be visualized in real time. It utilizes a continuous level of detail technique called clipmapping to support this. It offloads much of the work involved in breaking up the terrain into levels of details onto the GPU (graphics processing unit) for faster processing.

This work was done by Steven Myint and Abhinandan Jain of Caltech for NASA's Jet Propulsion Laboratory. For more information, contact iaoffice@jpl.nasa.gov.

This software is available for commercial licensing. Please contact Daniel Broderick of the California Institute of Technology at danielb@caltech.edu. Refer to NPO-47978.

SE-FIT

John H. Glenn Research Center, Cleveland, Ohio

The mathematical theory of capillary surfaces has developed steadily over the centuries, but it was not until the last few decades that new technologies have put a more urgent demand on a substantially more qualitative and quantitative understanding of phenomena relating to capillarity in general. So far, the new theory development successfully predicts the behavior of capillary surfaces for special cases. However, an efficient quantitative mathematical prediction of

capillary phenomena related to the shape and stability of geometrically complex equilibrium capillary surfaces remains a significant challenge. As one of many numerical tools, the open-source Surface Evolver (SE) algorithm has played an important role over the last two decades. The current effort was undertaken to provide a front-end to enhance the accessibility of SE for the purposes of design and analysis. Like SE, the new code is open-source and will remain

under development for the foreseeable future.

The ultimate goal of the current Surface Evolver – Fluid Interface Tool (SE-FIT) development is to build a fully integrated front-end with a set of graphical user interface (GUI) elements. Such a front-end enables the access to functionalities that are developed along with the GUIs to deal with pre-processing, convergence computation operation, and post-processing. In other words, SE-FIT