November 26, 2007

Memorandum

TO: Reviewers of IDAS
FROM: Radu Serban
SUBJECT: Software release for IDAS

IDAS is a general purpose (serial and parallel) solver for differential algebraic equation (DAE) systems or implicit ordinary differential equation (ODE) systems with sensitivity analysis capabilities. It provides both forward and adjoint sensitivity analysis options. IDAS was developed within CASC under MICS-SciDAC support. It is not usable in stand-alone form; it must be combined with an application program.

At this time we wish to release its first version, IDAS (v1.0.0) for the following reasons:

- To promote research collaborations between CASC personnel and colleagues at other sites, collaborations in which IDAS will be useful as a research tool;
- To elicit feedback from outside users which could lead to enhancements that will benefit LLNL users as well;
- To enhance the external reputation of CASC and LLNL with respect to mathematical software written here.

IDAS shares a common design philosophy and a number of support modules with the other solvers in the Suite of Nonlinear and Differential/Algebraic equation Solvers (SUNDIALS), namely CVODE, CVODES, IDA, and KINSOL, all of which have been previously released for unlimited distribution.

Being an item for general-purpose mathematical software, IDAS is not expected to be subject to export controls on the basis of its intrinsic capabilities.

A brief abstract of the package is provided in the Code Abstract.

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