Department of Mathematical Sciences Colloquium

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The SAGA Project: Domain Engineering, Software Testing, and Code Optimisation

Algebraic methods are based on the notions of universal algebras and category theory, and have been developed for the last three decades as part of theoretical computer science. In the SAGA project http://www.ii.uib.no/saga/ we are exploring the use of these methods for the development of scientific software, especially PDE software for seismic simulations. Algebraic specification methods seem especially useful for:

- Domain engineering: Found a radically different design for numerical software based on new domain specific abstractions

- Software testing: Create reusable test oracles

- Code optimisation: Getting rid of the computational overhead induced by the heavy use of abstractions in the software

An important point being that we are reusing the *same* specifications for all these purposes. This comes on top of the significant programming productivity gains resulting from improved PDE software design.

Thursday, November 2, 2006 at 4 pm in Bell Hall 143
The University of Texas at El Paso

> Please note the unusual time for the Colloquium.

Refreshments will be served in front of the colloquium room, 15 minutes before the start of the colloquium.

For further information, please contact Dr. Pavel Šolín, Bell Hall 220. Phone: (915) 747-6770, email: `solin@utep.edu`.