

## NEWS FROM WPI METAL PROCESSING INSTITUTE

Richard D. Sisson Jr.

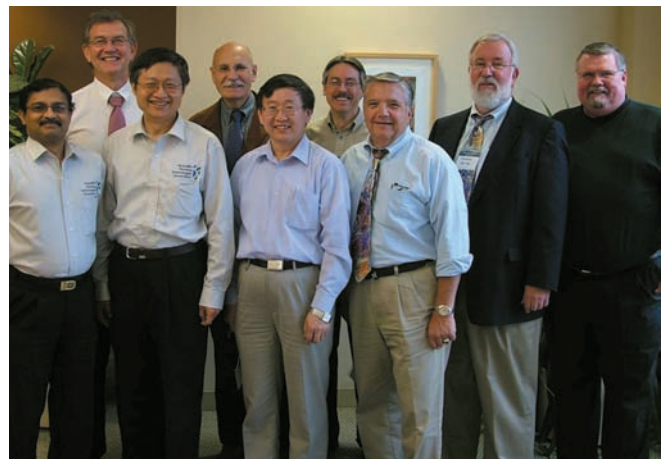
### CHTE and SFTC Enter into an Agreement to Commercialize CHTE Software

**D**iran Apelian, executive director of WPI's Metal Processing Institute (MPI), William Harris, chairman of the board of WPI's Center for Heat Treating Excellence (CHTE) and project manager at Sikorsky Aircraft, and Juipeng (Andy) Tang, president of Scientific Forming Technology Corp. (SFTC), Columbus, Ohio, announced that SFTC entered into an agreement to commercialize, distribute, and continue to develop the CHTE developed software, CHT-bf, CHT-cf and CHT-q/t.

This CHT software was developed by Prof. Kevin Rong's research team at WPI as part of a five-year CHTE project to create software to model the thermal response of parts with a wide variety of part loadings in batch (CHT-bf) and continuous (CHT-cf) furnaces. This development was greatly supported by the CHTE member companies, and particularly Surface Combustion Inc.'s (Maumee, Ohio) Bill Bernard and Max Hoetzel.

The software has been verified in more than 20 industrial furnaces including vacuum and atmosphere, batch, and continuous furnaces. The CHT-q/t predicts the quenching and tempering response of selected steels based on a quenching model and a tempering model. The application of this software will allow reductions in cycle times by up to 25%.

SFTC develops, distributes and supports the DEFORM System, a state of the art process-simulation system used to analyze metal forming, heat treatment and machining applications. DEFORM uses sophisticated finite element method (FEM) technology to offer



From left to right: Ravi Shankar (SFTC), Max Hoetzel (Surface Combustion), Wei-Tsu Wu (SFTC), Diran Apelian (Director of CHTE), Kevin Rong (CHTE), Bob Gaster (John Deere and former CHTE Board Chair), Roger Fabian (Bodycote, CHTE Director at-large and ASM President), Rick Sisson (CHTE), Bill Bernard (Surface Combustion and former CHTE Board Chair).

a competitive edge to leading manufacturers of critical service components. DEFORM is said to be the most widely used metal forming simulation code in the world.

The CHTE software will be an excellent supplement to the DEFORM System. There is a requirement for software that predicts the heating behavior of parts in a furnace load. This tool is applicable to all metals and alloys as well as ceramics and composites. We are excited to have the opportunity to offer a tool to the worldwide heating industry with the potential to significantly reduce energy costs and processing time. For more information on the commercialization of this software please contact John Walters at SFTC; tel: 614-451-8330; Web site: [www.deform.com](http://www.deform.com).

#### Sustainable Development Initiative

As reported in late 2008, in collaboration with Brajendra Mishra of the Colorado School of Mines (CSM), WPI received approval from the National Science Foundation on its letter of intent to establish a Center for Resource Recovery and Recyclability. Thus, it is moving forward with a planning grant and will hold a workshop with industry partners. With Prof. Dan Backman as its managing director at WPI, the center will conduct research that enables innovative recovery and recycling processing technologies that maximize the capture of post-consumer scrap and minimize the quantity of manufacturing scrap. Center researchers will apply a systems approach to identify best strategies and build optimal recovery and recycling technologies. For more information, contact Dr. Daniel Backman: tel: 508-831-5781; e-mail: [dbackman@wpi.edu](mailto:dbackman@wpi.edu).

#### Industrial Internships at CHTE

During this 2008-09 academic year, CHTE has five interns that are supported by the industrial sector (CHTE consortium members). While pursuing their M.S. and Ph.D. degrees, they are working on thesis projects relevant to the sponsoring company. CHTE is elated to have such a cadre of industrial interns; the interns together with the CHTE students and researchers bring the total to over a dozen! Keeping in mind that these people make things happen, CHTE is on the right path.