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**ESI** is the pioneer and world-leading solution provider in virtual prototyping.

#### Market Data

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#### Connect with ESI



## ESI will speak at CastExpo'10 in Orlando, Florida

The four presentations will cover the latest advancements in metal casting simulation research and practice

**CastExpo'10**, sponsored by the American Foundry Society (AFS) and the North American Die Casting Association (NADCA), is the largest trade show and exposition in North America for metal casters. It will be held on March 20 to 23 in Orlando, Florida, USA.

The presentations, given by **ESI**, will cover four different facets of metal **casting** simulation and will be given during the diverse congress technical sessions throughout the 3-day event by Sam Scott, ESI's Casting Lead Engineer.

1. The first paper entitled '**Transition to No-Lead Copper**' will be presented on Saturday, March 20 at 2pm during the 'Copper Alloy' session - S320C.

During the "Copper Alloy" session, in addition to **ESI**'s presentation on re-engineering with solidification modeling, two foundries will present case studies of their use of solidification modeling to ease their transition from leaded to non-leaded alloys.

2. The second paper entitled '**Core Blowing Simulation**' will be presented on Sunday, March 21 at 3:45pm during the 'Engineering' session - S320C.

As [casting](#) knowledge continues to expand, the percentage of scrap due to mold preparation will continue to increase, establishing a need to understand the creation of the mold components. ESI's [QuikCAST](#) numerical simulation software provides a tool for understanding and predicting the core blowing process. By treating the sand injection as a non-Newtonian flow, much insight is gained into the core manufacturing process, allowing engineers to properly design the core box, venting locations and sizes, and injection pressures. The paper discusses the analysis methodology and trials of two very different cores with experimental validations.

3. The third paper entitled '**Aluminum Microstructure/Heat Treatment**' will be presented on Monday, March 22 at 8:30am during the 'Aluminum' session - S320B.

A comprehensive numerical model has been developed for the calculation of the final microstructure and mechanical properties of aluminum [casting](#) alloys after heat treatment. After specifying the alloy chemical composition, solidification process, and heat treatment parameters, the model predicts the microstructure and potential defects through various stages of the component lifecycle: [casting](#), solid solution heat treatment, and artificial aging. The calculation is chained such that the resultant microstructure of the previous event, such as [casting](#), is used as the initial condition of the following event, ensuring the tracking of the component history and maintaining a high level of accuracy across metallurgical stages.

4. The fourth paper entitled '**HPDC Optimization**' will be presented on Monday, March 22 at 2pm during the 'Die Casting' session - S320E.

HPDC foundries currently rely on experience, trial-and-error or computer simulation to help determine working process parameters for manufacturing their cast parts. However, a "working" process is not necessarily the "ideal" process. Casting parameters such as cycle time, shot profile, cooling line temperature and flow rate, and spray thickness may be optimized to determine a robust process with maximum productivity. In this paper, ESI's [casting](#) simulation software [ProCAST](#) is used to demonstrate new functionality which automatically optimizes the [casting](#) process parameters. The demonstration utilizes a legacy [casting](#) design, simulates the [casting](#) process used at the foundry, and then automatically optimizes the [casting](#) process by varying fast shot speed, cycle time, cooling and spraying parameters within a given "realistic" process window, with a goal of producing a quality part in a minimum cycle time.



Delegates will also be able to find out more about [ESI's Casting](#) solutions by visiting [ESI's booth #1413](#) in the exhibition area.

For more immediate information on [ESI's Casting Simulation Suite](#), please visit: <http://www.esi-group.com/products/casting>

For more ESI news, visit: <http://www.esi-group.com/newsroom>

#### About ESI Group

[ESI](#) is a pioneer and world-leading solution provider in virtual prototyping that takes into account the physics of materials. [ESI](#) has developed an extensive suite of coherent, industry-oriented applications to realistically simulate a product's behavior during testing, to fine-tune manufacturing processes in accordance with desired product performance, and to evaluate the environment's impact on performance. [ESI's](#) solutions fit into a single collaborative and open environment for End-to-End Virtual Prototyping, thus eliminating the need for physical prototypes during product development. The company employs over 750 high-level specialists worldwide covering more than 30 countries. [ESI Group](#) is listed in compartment C of NYSE Euronext Paris. For further information, visit [www.esi-group.com](http://www.esi-group.com).