

## BEST CONGRESS PAPER AWARD - ZINC

NADCA's Best Congress Paper is elected by paper reviewers and session chairpersons from NADCA's International Technical Council and NADCA's Technical Staff. Papers that are chosen demonstrate a high degree of technical achievement and excellence in the advancement of die casting. **Award presented by: Douglas Harmon**



**FRANK GOODWIN**

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**Dr. Frank Goodwin** serves as Director of Technology and Market Development at International Zinc Association and is based in IZA's Durham, NC office. Dr. Goodwin joined International Lead Zinc Research Organization (ILZRO) in 1982 and was Executive Vice President of ILZRO at the time of merger between ILZRO and IZA in 2004.

He earned his S.M. and Sc.D. degrees in Materials Engineering from the Massachusetts Institute of Technology in Cambridge, MA together with a B.S. degree (with distinction) in Materials Science and Engineering from Cornell University, Ithaca, NY. He is the author of several U.S. and foreign patents and

over 300 technical publications and contributions to books.

**Lothar Kallien** is currently a professor of foundry technology at the University of Applied Sciences in Aalen. His education is from RWTH Aachen in metallurgy, specializing in foundry processes. Also at RWTH Aachen he was a research assistant to Professor P. R. Sahm at the Foundry Institute. His dissertation on "Highly Supercooled Production and Rapidly Solidified Metal Powder by Schmelzeverdüsung" was awarded the Borchers Medal of RWTH Aachen.

After graduating from RWTH Aachen Lothar took a position as the head of die

cast at MAGMA GmbH in Aachen, where he was a project coordinator for EU projects under BRITE / EURAM entitled "Process Analysis, Computer Modeling and Production Development of High Pressure Die Casting". He moved to Chicago, USA to take a position as Managing Director in the field of simulation of casting processes for MAGMA, Inc. There he became a member of the American Foundrymen's Society and the North American Die Casting Association. He was promoted to the Head of Technical Services Department of MAGMA GmbH, in the field of simulation of casting processes. From this position he moved to Managing Director of SIGMA Engineering GmbH, in simulation plastic technical processes. He coordinated collaborative projects for the "development of a multifunctional tools to improve quality and cost in the production of high-quality plastic injection molded parts". In 2004 Lothar joined the University of Applied Sciences at Aalen, where he became a professor of foundry technology.

Professor Kallien is an AiF evaluator of national research projects, organizer for the "Aalen Foundry Colloquium" and "Barbara Colloquium" in Aalen, and lectures at the University of Clausthal and the Volkswagen AutoUni about die casting light alloys. He has been a member of Scientific Advisory Boards for the "Lightweight Cast in 2008" at the University of Munich, "High Tech Die Casting" at the Associazione Italiana Metallurgia, and "International Conference on Zinc Die Casting" at the International Zinc Association. He is a board member of the National

Group of the Landesgruppe Süd des Vereins Deutscher Gießereifachleute. He is active in the development and management of the Steinbeis Transfer Center Gießereitechnologie Aalen.

**Walter Leis** is responsible for generating research proposals, project management and reports. The physical and mathematical background together with an experience of nearly 32 years in die casting environment his focus is a characterization of defects and a calculation of the thermal and flowing behavior in the die casting process especially the influence of the process parameters. Since 2008 he has an additional focus on Zinc Die Casting – Ageing and Creep Behavior.

**Zinc Casting Alloy Engineering Properties Research: Update on HF Alloy and Alloy 5** - F. Goodwin, *International Zinc Association*; L. Kallien, *GTA Foundry Technology*; W. Leis, *GTA Foundry Technology*

Zinc casting alloy research, based on funding from the USA Department of Energy and the NADCA Technology Administration Group has recently focused on the new HF (high fluidity) alloy and also the further development of creep properties data for Alloy 5. Room temperature ageing and creep results have been extended for the HF alloy. The effect on Alloy 5 casting section thickness on creep properties is under current investigation; available data and analysis are described. The new results will be put in the perspective of other zinc alloy data and include a scientific basis of explanation of the observed results.