

**ASTFE**American Society
of Thermal and Fluids EngineersProceedings of the 1st Thermal and Fluids Engineering Summer Conference, TFESC-1
August 9-12, 2015, New York City, USA**TFESC-PL002**

MODELING THERMAL AND FLUIDS PROBLEMS ARISING IN INDUSTRY

John S. Abbott

Senior Engineering Associate at Corning Incorporated

ABSTRACT

As computational capability continues to dramatically increase, we are able to support experimentation and analysis of manufacturing processes with practical but evermore detailed numerical models. This talk explores real-life thermal and fluids problems arising in the variety of businesses at Corning Incorporated, including the manufacture of catalytic converters for pollution control, optical fibers for telecommunication, and flat glass panels both large and small for displays. The problems include extrusion, the chemical reactions involved in the firing of ceramics, combustion synthesis and particle deposition, and drawing and forming of molten glass. As in other companies, development times are being shortened by incorporating analysis and modeling to drive testing and early experiments; in addition, process improvement and optimization benefits from the increased emphasis on fundamentals and a science-based approach.