

# Preface

The following papers, presented at the conference, give a very representative snapshot of the modelling activities for processes involving extrusion. They cover a wide range of topics that were grouped into the following categories: benchmark, keynotes, material flow and constitutive equations, microstructure, seam welds and process optimization, dies and tools. However, the topics covered by the conference were many more than these, including new materials (magnesium, hard alloys and composites), new products (composite profiles) and new processes (hot profile bending, thixoextrusion).

The benchmark, the core of the conference, was aimed at exploiting FEM code capabilities and users' knowledge in the simulation of an industrial extrusion process as it was realized by the conference organizers.

The experiments were accurately monitored in order to provide precise reference conditions. In particular, the adoption of two very different ram speeds should allow everyone to check the aptitude of a simulation tool to correctly predict how a particular die set would behave at different processing conditions.

The comparison of the output of a numerical simulation with the experimental results here presented should allow users to check whether their settings are generally adequate to the problem and software houses to verify the sensitivity of their solving methods.

Clearly, a single experiment cannot be expected to cover all extrusion-related issues. Here, the attention was focused on the simulation of die pockets and their effectiveness in affecting material flow. A multi-hole die with four L-shaped profiles was built and the effect of different pocket shapes on process behaviour was evaluated.

As a final remark, it must be noted that, due to the complexity of this matter, it would be useless to consider the benchmark as a contest: it is, instead, an opportunity to fix some points about everyday simulation practice, each participant having his own particular interest. We hope that it will be of use also in the future, among the next benchmark experiments.

Luca Tomesani, Conference Chairman

University of Bologna  
Dipartimento DIEM  
Viale Risorgimento 2  
40136 Bologna, Italy