
Editorial

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Industrial tools can be described as one of the most important driving forces of modern manufacturing operations. As nowadays production and economy can be described as turbulent, full of changes, competitions, opportunities and risks, the same is valid also for tool production and development. Since all material processing and tool manufacturing operations are under severe time pressures, toolmakers of the 21st century use a computer supported digital world to evaluate their ideas and their processing technologies before taking final decisions and starting to make a real tool. For these reasons, a modern computer can be viewed as one of the most efficient tool to make real tool.

New material processing and tool manufacturing technologies, virtual manufacturing, intelligence systems, rapid tooling, tools for flexible and small quantity production, tool making management, new materials and their treatments, concurrent process and part (re)design methods, all these topics were discussed during the conference.

When looking on the final product which will fulfil all customers or market demands, it is obligatory to combine different manufacturing technologies to get an optimal solution. From this reason, it is necessary that experts, specialists, engineers and researchers have a possibility to come together and to inform each other about new technologies and solutions.

Classic terminus 'tool making' is not more valuable for the 21st century. Tools for sheet metal forming, bulk hot or cold forming, injection moulding of polymers, could be described as mechatronic production subsystems as they are capable to control the processes and in many cases to react in a real time. Tools also communicate with their environment, with forming, handling devices, sometimes they are called as a heart of the material processing system.

Another supporting pillar for successful material processing operations is the tool production. Tool should be manufactured in a very short time, they should assure stable production of big quantities of parts with more and more narrowed tolerances. To do this, modern machining methods are available or methods where energy is directly applied like AWJ, lasers and EDM.

During the conference 63 papers were presented covering the majority of problems connected with processing technologies and tool production. At the beginning, some general topics were discussed among them:

- tailored heat treated blanks applied on car body parts under quasi-series conditions
- new materials and surface finishing methods for cold forging tools.

In sessions on 'metal forming processes and tools' 17 papers were presented, a special interest was given to:

- the impact of the forming system parameters on tool service life and product accuracy in cold forging
- mastering the stamping of steels with increased strength in Slovene tool making industry
- material formability at cold upsetting of cylinder by different plates as a base for metal forming technology design
- about the sheet metal testing by hydraulic bulging
- functional gradation by different thermo-mechanical treatment.

From the field 'injection moulding processes and tools' a contribution:

- the effect of process conditions on durability of polymeric products should be underlined.

Sessions on 'materials' had interesting contributions like:

- understanding and preventing damages to dies of die-casting tools
- development of high strength superplastic Mg alloy by rapid solidification and reciprocating extrusion.

Session on 'tool manufacturing' discussed:

- an approach to reduce the influence of tool wear on workpiece properties during hard turning.

In the area of 'intelligence systems' a promising paper was presented on problems:

- application of genetic algorithms for the optimisation of actuator systems for laser micro adjustment.