



Newsletter

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Editorial

September 2005

Welcome to the first edition of the Masmicro Update. This newsletter will give you information about Masmicro, the European research project aimed at creating a cutting edge process for the mass-manufacture of miniature and micro-products.

Three times a year, Masmicro Update will inform SMEs, researchers, potential investors and users of the new production facility about the progress of the research, the consortium and all issues related to the implementation of this 4 year project.

To make sure you receive all issues of the Masmicro Update, register on the mailing-list from the website: www.masmicro.net

Dorothee Loziak

Mass-manufacture of miniature and micro-products New integrated production facility by 2008

With a total budget of €21.5 million, the four-year Masmicro project will develop an integrated production facility for the mass-manufacture of miniature and micro-products.

Launched in July 2004, Masmicro is an Integrated Project supported by the European Commission under the Framework Programme 6 (FP6). Coordinated by the University of Strathclyde based in Glasgow (UK), the consortium gathers 36 partners from 13 EU countries including 18 SMEs.

To-date, manufacture of miniature and micro-products still largely relies on the techniques based on the removal of the materials, either by chemical or mechanical means. The objective of the Masmicro project is to convert miniature and micro-materials into engineering products by high-rate plastic deformation.

This type of technology, explains Yi Qin,

technical project coordinator at Strathclyde University, will greatly reduce costs and equipment size for the manufacture of miniature and micro-components for the electronics, automotive, aerospace and automation sectors. Technologies and systems to be developed will bring technological and organisational measures to realise mass production of miniature and micro-products in a scale that has not been achieved by any organisation so far. It is estimated that manufacturing cost will be cut down by approximately 40 to 80% depending on component-forms to be produced.

Masmicro will generate an integrated solution of miniature/micro manufacturing to the industries by 2008. Such a development will enable to enhance European competitiveness and to maintain a sustainable development of EU miniature/micro industries. ■■■

European cooperation for a better Expertise in Design

Masmicro is composed of 9 RTD (Research & Technological Development), each of which addressing a particular aspect required for the development of the integrated manufacture facility. In this issue, Masmicro Update is focusing on the activities of the first group (RTD1) specialised on Design, Analysis and Systems.

Interview: Dr Jianguo Lin, coordinator of the RTD 1 based at the University of Birmingham

■ What is the composition of the RTD1?

The RTD1 is composed of four main partners from three different countries: Comtes Fht (COM) in the Czech Republic, Fraunhofer-Institut for Production Systems and Design Technology (IPA) from Germany, University of Strathclyde (STR) and University of Birmingham (BIM) in the UK.

■ What are your objectives?

Activities of our group focus on two major aspects. The first one is to develop miniature/micro-forming and machining related product design tools, which will be interfaced to commercial design/modelling systems for micro product design, forming process design

and tooling design.

STR and IPA will carry out these activities with the collaboration of other partners within the consortium. They both have significant experience on the development of design systems for macro and micro products, particularly STR has made an important contribution in smart tooling design for metal forming.

The second aspect in RTD 1 is to develop the capability in numerical simulation of deformation in forming micro-parts using crystal plasticity. More specifically, microstructure of materials will be considered in simulation, which enables the size effects on deformation to be captured.

The developed application systems will be incorporated into commercial solvers to add forming process and forming tool design for producing minia-

ture and micro-parts.

BIM and COM, which have both significant knowledge on forming process simulations, particularly in the prediction of microstructure evolution, such as grain size, precipitates, texture, in metal forming processes, will carry out these activities.

■ How often do the partners communicate?

Weekly communications are carried out between the partners on each aspect of the activities.

■ Do you get support from other partners within the consortium?

Other partners to provide support to RTD1 are Gammastamp SpA from Italy, Pinol A/S from Denmark and TECAN in the UK.

Project Activities Update

Though MASMICRO project started slowly due to the delayed signing of the contract, the project has now taken full pace towards its objectives of the first 18 months. Certain progress has been made in design and analysis theory and software development and in material testing device development and material properties characterisation.



Promising results have also been produced in forming/machining-tools and forming/machining machine-system concepts development, as well as in applications of non-traditional techniques in micro-parts fabrication. Inspection and handling at this stage has a focus on the inspection of a particular medical implant, which will see the development to be extended to other applications in next stage.

Assembly is in its initial stage of the development and has qualified some of important fundamental issues. With the KBDS and the Manufacturing Control System having the system design qualified, the strategy for the transport-system development has been proposed.

The project is now at a crucial stage of its development as a series of design concepts are to be finalised. This will have significant effects on the outcome of the project. The annual review will assess current development in detail and deliver a detailed plan for next 18 months. It will ensure that the project progresses in right direction with right pace towards achievement of overall objectives of the project. Yi Qin, technical coordinator. Email: qin.yi@strath.ac.uk

Exploitation and Dissemination of Knowledge

On July 21st, the Project Exploitation Board held its first meeting at the Asociaçion de la Industria Navarra in Pamplona (Spain). During the meeting several ideas from the industrial partners came up for the future exploitation of the Masmicro outcomes. An application of miniature micro fabrication was envisaged to cover needs within High-Tech SMEs.

The Project Exploitation Board intends at first stages of the project to boost a *Provision of Services* to convert Masmicro consortium in a big virtual Service Company able commercialise High-Tech products, including modelling software, process designs, and customized micro components.

For further information or to register your interest, please email: rodriguez@ain.es

R & D News

Masmicro Gender Issues

The 36 Masmicro partners are currently working on a gender awareness questionnaire to seek new ways of improving participation of women in the research project. Results of this initiative encouraged by the European Commission will be detailed in the next Masmicro Update.

FP6 current and future calls for proposals

Spreadsheet updated in June 2005 lists latest information on calls for proposals in FP6. Excel file at the bottom of the page on:

http://www.irscotland.net/euro_funding/european_funding.cfm

All calls published as well on: <http://fp6.cordis.lu/fp6/home.cfm>

EC Publication

Manufuture, a vision for 2020, by the Manufuture High Level Group, 2004.

http://europa.eu.int/comm/research/industrial_technologies/pdf/manufuture_vision_en.pdf

This newsletter is free and has been edited by the University of Strathclyde, DMEM, under the Masmicro project and is the sole responsibility of its authors. Editor of the Masmicro Newsletter: Dorothee Loziak

Add your name to the mailing list to receive future Masmicro newsletter by sending an email to dorothee.loziak@strath.ac.uk or subscribe on-line on www.masmicro.net

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Masmicro Partners

1. University of Strathclyde (UK)
2. Abbott Vascular Devices (Ireland)
3. Centro de Ingeniería Avanzada de Superficies (Spain)
4. BPE International (Denmark)
5. Contour Fine Tooling Ltd (UK)
6. CEDRAT Technologies S.A. (France)
7. Gammastamp SpA (Italy)
8. Latronics GmbH (Germany)
9. Leister Technologies GmbH (Germany)
10. Loadpoint Ltd. (UK)
11. MASMEC s.r.l. (Italy)
12. Nolac (Denmark)
13. Pind (Denmark)
14. Robotnik Automation S.L.L. (Spain)
15. Solas Data (Ireland)
16. Specicom (Belgium)
17. Pascoe Precision Engineering (UK)
18. Comtes FHT (Czech Republic)
19. Carinthian Tech Research AG (Austria)
20. Swiss Federal Laboratories for Materials Testing and Research (EMPA) (Switzerland)
21. Swedish Institute for Fibre and Polymer Research (Sweden)
22. Fraunhofer Institute Laser Technology (Germany)
23. Fraunhofer Institut Produktionstechnik und Automatisierung (Germany)
24. Fraunhofer Institute Production System and Design Technology (Germany)
25. Institute for Product Development (Denmark)
26. National Manufacturing Research Centre (Ireland)
27. Tekniker (Spain)
28. Upper Austrian Research GmbH (Austria)
29. University of Applied Science Cologne (Germany)
30. University of Birmingham (UK)
31. Leeds Metropolitan University (UK)
32. University of Patras (Greece)
33. Polytechnic University of Valencia (Spain)
34. Tecan (UK)
35. Anter Ltd (Greece)
36. National Metal Technology Centre (UK)

For a detailed presentation of each partner, visit

www.masmicro.net

Partnership - Collaboration

You would like to know more about Masmicro or submit a project of collaboration, please visit: www.masmicro.net



FP6 Program