Preface

The 5th conference on industrial computed tomography 2014 (iCT2014) in Wels/Austria is the continuation of four precursor conferences:

- Industrielle Computertomografietagung, Wels, Austria, 19. September 2006, 80 participants

Industrial X-ray computed tomography (CT) is a method whose relevance has increased more and more because of its great advantages. Industrial CT is any computer-aided tomographic method (usually x-ray CT), that uses irradiation (usually x-rays) to produce a three-dimensional representation of the scanned object. The application areas of CT are diverse and extensive, since any material or component can be examined with CT. The major application areas of CT in science and industry are non-destructive testing, 3D materials characterization and dimensional measurements (metrology). Some of the key uses for CT scanning are flaw detection, failure analysis, 3D analysis and material composition, extraction of material properties for finite-element simulation, fibre extraction, assembly analysis, actual/nominal comparison and reverse engineering applications. In recent years various quantitative CT-methods were developed to use CT for the correct and reproducible determination of quantitative data from materials and components like porosity, pore size and form distribution, fibre length and orientation distribution, phase percentage and distribution, geometrical data,…

Industrial CT is used in various different industry sectors, but particularly in the automotive-, aerospace- and materials industry. Due to the increasing dispersion of industrial CT, the method development and application areas are being spurred on at a fast pace. Currently there are more than 30 CT-device manufactures all over the world. Most of them can be found in the scientific program or at the industrial fair of this conference. CT-devices with prices ranging from EUR 60,000 to more than a million EUR can be delivered for a broad variety of applications. An overview of CT-instrumentation companies can be found on www.3dct.at.

The presentations of this conference will give insight on the newest developments as well as the established methods. Within this conference the current state-of-the-art and new developments in the following areas will be presented:

- CT for non-destructive testing of metals, plastics, composites, ceramics and other materials
- Applications of CT in automotive-, aerospace- and material industry
- CT as a tool for the development of new materials and components
- CT for 3D materials characterisation
- Geometry determination with macro- and micro-CT. First article inspection and reverse engineering
- Evaluation and visualisation of CT data
• CT: from imaging inspection equipment to a calibrated measurement equipment. How to measure with CT?
• New algorithms and software tools for the evaluation and visualisation of CT data. Correction and filter methods for the improvement of CT results
• Standardisation of CT (e.g. VDI/VDE-GMA)
• New CT methods for high resolution, energy dispersive and fast CT. Synchrotron-CT methods
• New developments in CT instrument technology including X-ray detectors and sources

On the basis of submitted abstracts the 25 members of the scientific program committee have developed the scientific program (talks and posters) for the iCT2014. We thank all members for their active support and work.

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• Gerhard Aufricht (ÖGfZP, Vienna/AT)
• Markus Bartscher (PTB, Brunswick/DE)
• Giovanni Bruno (BAM, Berlin/DE)
• Simone Carmignato (Univ. of Padua/IT)
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• Gustavo Donatelli (CERTI, Florianópolis/BR)
• Alexander Flisch (EMPA, Dübendorf/CH)
• Eduard Gröller (TU Vienna/AT)
• Randolf Hanke (University Würzburg/DE)
• Jakobus Hoffman (Ncsa, Pretoria/SA)
• James Hunter (Los Alamos National Laboratory/USA)
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• Javier Llorca (iMdea, Madrid/ES)
• Michael Maisl (DGZfP and FhG-IZfP Saarbrücken/DE)
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• Reinhold Oster (Eurocopter, Munich/DE)
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• Rainer Stössel (EADS, Munich/DE)
• Hiromasa Suzuki (University of Tokyo/JP)
• Takatsui Toshiyuki (National Metrology Institute of Japan, Tsukuba/JP)
• Daniel Vavrik (CTU, Prague/CZ)
• Philip Withers (University of Manchester/UK)

The contributions accepted by the scientific program committee are published in the underlying conference proceedings and will be available online on www.ndt.net in a few months.

We thank our co-organisers, who supported us strongly especially in the promotion of this conference:

• ÖGfZP (Österreichische Gesellschaft für zerstörungsfreie Prüfung)
• DGZfP (Deutsche Gesellschaft für zerstörungsfreie Prüfung)
• SGZP (Schweizer Gesellschaft für zerstörungsfreie Prüfung)
• DGM-Arbeitskreis Tomografie (Deutsche Gesellschaft für Materialkunde)
We are also very thankful to our industrial sponsors (CT-device manufacturers, X-ray source manufacturers, detector manufacturers and software manufacturers), who support the iCT2014 financially and exhibit their latest developments at the fair accompanying the talks:

1. Bruker Austria GmbH, Vienna/AT
2. Carl Zeiss IMT GmbH, Oberkochen/DE
3. Excillum AB, Kista/SE
4. FEI Visualization Sciences Group, Heidelberg/DE
5. GE Sensing & Inspection Technologies GmbH, Wunstorf/DE
6. Hamamatsu Photonics Deutschland GmbH, Herrsching/DE
7. Ikeda CO, Nagoya/JP
8. Math2Market GmbH, Kaiserslautern/DE
9. Morgan Advanced Materials (WESGO), Erlangen/DE
11. North Star Imaging Europe, Paris/FR
12. RayScan Technologies GmbH, Meersburg/DE
13. Siemens AG, Erlangen/DE
14. Simpleware Ctd., Exeter/UK
15. TPW Prüfzentrum GmbH, Neuss/DE
16. VSG - Visualization Sciences Group, Düsseldorf/DE
18. Werth Messtechnik GmbH, Gießen/DE
20. 3D Industrial Imaging, Harpenden/UK

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Sincere thanks are given to the local organizing committee, in particular to DI(FH) Michael Reiter and to Mag. Nicola Spitzer, who had a lot of work concerning the organization of the proceedings and the conference in general.
We wish you many new ideas, fruitful discussions and in particular a pleasant stay at the conference and in Wels. Our next “Conference on Industrial Computed Tomography iCT2016” will be held in 2016 and we would be delighted to see you there again.

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