Sessions

7th February 2018
- Materials Characterisation (I)
- Materials Characterisation (II)
- NDT, Instrumentation and Manufacturing (I)
- NDT, Instrumentation and Manufacturing (II)
- Short Talks
- Poster Exhibition

8th February 2018
- Metrology (I)
- Metrology (II)
- Metrology (III) and Dual-Energy Imaging
- Algorithms, Image Processing and Visualisation

9th February 2018
- Phase Contrast and Reconstruction
- Optimisation, Spectral and Dual-Energy Imaging

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Preface

The 8th conference on industrial computed tomography 2018 (iCT2018) in Wels/Austria is the continuation of 7 precursor conferences:

- Industrielle Computertomografietagung, Wels, Austria, 19. September 2006, 80 participants
- 6th Conference on Industrial Computed Tomography 2016, Wels, Austria, 9.-12. February 2016, 230 participants

Industrial X-ray computed tomography (CT) is a method whose relevance has increased more and more because of its great advantages. CT is a non-touching, non-destructive method which reveals the complete 3D-geometry of a specimen including inner surfaces. For research CT is an excellent tool to support the development of new materials, new processes and new parts, but it is also used for quality control and failure analysis. Some rough estimates of the worldwide industrial CT-market in 2018 are:

- 2000-3000 CT-systems for non-medical applications worldwide
- >30 CT-suppliers including small companies and big international enterprises
- >10 CT-Software companies
- Several CT-standards are available: VDI/VDE 2630 for metrology and DIN EN 16016-1-4: 2011 for non-destructive testing, ASTM E 1695 (Standard test method for measurement of CT system performance) and ASTM E 1441 and ASTM E 1570 (Standard practice for CT), ISO 15708-1 and 2 for non-destructive testing. In addition the ISO TC 213 WG 10 is working on future ISO 10360-standards for CT applied to metrology

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
- Application of CT in automotive-, aerospace- and material industry
- CT as a tool for the development of new materials and components
- CT for 3D material characterisation
- Geometry determination with macro- and micro-CT
- Initial sampling inspection and reverse engineering
- Quantitative evaluation and visualisation of CT data
- New algorithms und software tools for the evaluation and visualisation of CT data
- Correction and filter methods for the improvement of CT results
- Standardisation of CT
- 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
- Phase contrast and grating interferometer CT
On the basis of submitted abstracts the 32 members of the scientific program committee have developed the scientific program (talks and posters) for the iCT2018. We thank all members for their active support and work.

The contributions accepted by the scientific program committee will be published in the conference proceedings. The proceedings consist of two parts:

- High quality conference papers will be especially selected and published in a Topical Collection of JONE – Journal of Nondestructive Evaluation (link.springer.com/journal/10921) after the conference and a successful peer review process. This Topical Collection will be published several months after the conference.

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 iCT2018 financially and exhibit their latest developments at the fair and accompanying talks:

Diondo GmbH, Hattingen/DE
Werth Messtechnik GmbH, Gießen/DE
Volume Graphics GmbH, Heidelberg/DE
Thermo Fisher Scientific, Merignac/FR
GE Sensing & Inspection Technologies GmbH, Wunstorf/DE
Carl Zeiss Industrielle Messtechnik Austria GmbH, Graz/AT
Math2Market GmbH, Kaiserslautern/DE
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Siemens Healthcare GmbH, Erlangen/DE
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NDT.net

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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” will be held in 2019 and we would be delighted to see you there again.

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