

Proceedings

Conference on Industrial Computed Tomography (ICT) 2012

19th – 21th September 2012

Sessions

Non-destructive Testing and 3D Materials Characterisation

- Keynote
- Composites and Polymers
- Metallic Materials
- Visualisation and Simulation
- CT-instrumentation and Correction Methods

Dimensional Measurement

- Keynote
- Dimensional Measurement 1 – Uncertainty Evaluation
- Dimensional Measurement 2 – Measurement Parameters
- Dimensional Measurement 3 and Special Applications

Poster session

- Analysis and Algorithms
- Dimensional Measurement
- CT-instrumentation and Others

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Preface

The industrial conference on computed tomography 2012 in Wels/Austria is the continuation of two precursor conferences:

- Industrielle Computertomografietagung, Wels, Austria, 26.-27. February 2008, Proceedings: ISBN 978-3-8322-6949-4, Shaker Verlag, Aachen (2008).
- Industrielle Computertomografietagung, Wels, Austria, 28.-30. September 2010, Proceedings: ISBN 978-3-8322-9418-2, Shaker Verlag, Aachen (2010).

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-destructive method for measuring components 3-dimensionally in order to find hidden errors (e.g. shrink-hole, cracks, inclusions, pores, etc.) in the depth of the material and to determine physical variables like porosity and density. CT allows the inspection and measurement of hidden and inaccessible specimen characteristics, which is not possible with other techniques. 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
- 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
- Quantitative evaluation of CT data
- Standardisation of CT (e.g. VDI/VDE-GMA: Technical committee “Computed Tomography for Metrology”)
- New CT methods for high resolution, energy dispersive and fast CT
- New developments in CT instrument technology including X-ray detectors and sources

On the basis of submitted abstracts the 18 members of the scientific program committee have developed the scientific program (talks and posters) for the iCT2012. We thank all members for their active support and work.

- Johann Kastner (FH OÖ, Wels/AT)
- Gerhard Aufricht (ÖGfZP, Vienna/AT)
- Markus Bartscher (PTB, Brunswick/DE)
- Andras Borbely (ENSMSE, Saint-Étienne/FR)
- Simone Carmignato (Univ. of Padua/IT)
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- Ion Tiseanu (INFLPR, Bucharest/RO)
- David Vavrik (CTU, Prague/CZ)
- Valery L. Vengrinovich (Institute of Applied Physics, Minsk/BY)

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-organizers, 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 iCT2012 financially and exhibit their latest developments at the fair accompanying the talks:

- Carl Zeiss IMT GmbH, Oberkochen/DE
- GE Sensing & Inspection Technologies GmbH, Wunstorf/DE
- Excillum AB, Kista/SE
- Hamamatsu Photonics Deutschland GmbH, Herrsching/DE
- Nikon Metrology NV, Leuven/B
- North Star Imaging Europe, Paris/FR
- RayScan Technologies GmbH, Meersburg/DE
- Volume Graphics GmbH, Heidelberg/DE
- VSG - Visualization Sciences Group, Düsseldorf/DE
- Wenzel Volumetrik GmbH, Singen/DE
- Werth Messtechnik GmbH, Giessen/DE
- Yxlon International GmbH, Hamburg/DE

The iCT2012 conference was also supported by the K-project for non-destructive testing and tomography. We are thankful to the Government of Upper Austria and the comet program of the FFG (Austrian research promotion agency) for their financial support.

Sincere thanks are given to the local organizing committee, in particular to DI(FH) Michael Reiter and to Mag. Elena 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" will be held in 2014 and we would be delighted to see you there again.

A handwritten signature in dark ink, appearing to read "Johann Kastner", written in a cursive style.

Prof.(FH) Priv.-Doz. DI Dr Johann Kastner
University of Applied Sciences Upper Austria - Wels Campus

Content

Non-destructive Testing and 3D Materials Characterisation

Keynote.....	11
<i>M. Wevers</i>	
X-ray Computed Tomography for Non-Destructive Testing.....	13
Composites and Polymers.....	31
<i>R. Stoessel, O. Wirjadi, M. Godehardt, A.L. Schlachter, A. Liebscher</i>	
Analysis of inner fracture surfaces in CFRP based on μ -CT image data.....	33
<i>M. Krumm, C. Sauerwein, V. Hämmerle, R. Oster, B. Diewel, M. Sindel</i>	
Capabilities and Application of Specialized Computed Tomography Methods for the Determination of Characteristic Material Properties of Fiber Composite Components.....	41
<i>W. Holub, U. Haßler</i>	
Detection and Evaluation of Ondulations in Glass-Fiber Reinforced Materials.....	49
<i>M. Jerabek, M. Reiter, H. Herbst; B. Plank, D. Salaberger, Z. Major</i>	
Characterization of Short Fiber Reinforced Polypropylene Composites.....	55
Metallic Materials.....	59
<i>S. Großeiber, G. Requena, E. Kozeschnik, C. Gusenbauer, S. Ilie</i>	
Correlation between hot ductility and damage in microalloyed steel slabs.....	61
<i>F. Léonard, J. Stein, A. Wilkinson, P.J. Withers</i>	
3D Characterisation of Void Distribution in Resin Film Infused Composites.....	69
<i>G. Kerckhofs, G. Pyka, M. Moesen, J. Schrooten, M. Wevers</i>	
High-resolution micro-CT as a tool for 3D surface roughness measurement of 3D additive manufactured porous structures.....	77
<i>F. Léonard, S. Tammas-Williams, P.B. Prangnell, I. Todd, P. J. Withers</i>	
Assessment by X-ray CT of the effects of geometry and build direction on defects in titanium ALM parts.....	85
Visualisation and Simulation.....	95
<i>C. Guillaume, P. Schuetz, K. Wegener</i>	
CT based Analysis and Simulation of Epoxy Composites with High Packing Density with Natural Mineral Filler Material.....	97
<i>P. Westenberger, P. Estrade, D. Lichau</i>	
Fibre Orientation Visualization with AvizoFire®.....	99

<i>M. Voorn, A. Rath, U. Exner</i>	
μCT on narrowly fractured natural rock samples from a hydrocarbon reservoir.....	105
<i>A. Flisch; P. Schütz, I. Jerjen; T. Lüthi</i>	
Influence of Focal Spot Size of 450kV X-ray Tubes on Spatial Resolution of CT Images.....	113
CT-instrumentation and Correction Methods.....	115
<i>S. Zabler, T. Ebensperger, C. Fella, R. Hanke</i>	
High-resolution X-ray imaging for lab-based materials research.....	117
<i>C. Kottler, V. Revol, R. Kaufmann, P. Niedermann, F. Cardot, A. Dommann</i>	
X-ray Grating-based Phase Contrast CT for Non-Destructive Testing and Evaluation.....	129
<i>T. Nishihata, Y. Ohtake, H. Suzuki, M. Moriguchi</i>	
A Non-iterative Data-driven Beam Hardening Correction for Single-material Objects.....	135
<i>P. Schuetz, A. Miceli, A. Flisch, I. Jerjen, J. Hofmann, U. Sennhauser</i>	
Strategies for the reduction of environmental scattering in X-ray Computed Tomography.....	143
<i>B. R. Müller, A. Lange, M.P. Hentschel, A. Kupsch</i>	
A comfortable procedure for correcting X-ray detector backlight.....	151

Dimensional Measurement

Keynote.....	159
<i>S. Carmignato, A. Pierobon, P. Rampazzo, M. Parisatto, E. Savio</i>	
CT for Industrial Metrology – Accuracy and Structural Resolution of CT Dimensional Measurements.....	161
Dimensional Measurement – Uncertainty Evaluation.....	173
<i>D. Weiß, R. Lonardonì, A. Deffner, C. Kuhn</i>	
Geometric image distortion in flat-panel X-ray detectors and its influence on the accuracy of CT-based dimensional measurements.....	175
<i>K. Kiekens, T. Ye, F. Welkenhuyzen, J.P. Kruth, W. Dewulf,</i>	
Uncertainty Determination for Dimensional Measurements with Computed Tomography.....	183
<i>M. Bartscher, H. Bremer, T. Birth, A. Staude, K. Ehrig</i>	
The resolution of dimensional CT – an edge-based analysis.....	191
<i>F. A. Arenhart, V. C. Nardelli, G. D. Donatelli, M. C. Porath</i>	
Investigation of the CT-induced random surface deviations using a multi-wave standard.....	201
<i>R. Schmitt, S. Pollmanns, M. Nau</i>	
Accuracy Study of medical CT Systems for Image-Guided Surgery according to VDI/VDE GMA 2630 Guideline.....	209

Dimensional Measurement – Measurement Parameters..... 219

R. Giedl-Wagner, T. Miller, B. Sick

Determination of Optimal CT Scan Parameters Using Radial Basis Function Neural Networks..... 221

P. Müller, J. Hiller, A. Cantatore, M. Bartscher, L. De Chiffre

Investigation on the influence of image quality in X-ray CT metrology..... 229

T. Fröba, J. P. Steffen

Assessing the Effect of Focal Spot Movement on the Accuracy of CT Results by using a Simulation Technique 239

M. Reiter, M. Krumm, S. Kasperl, C. Kuhn, M. Erler, D. Weiß,

C. Heinzl, C. Gusenbauer, J. Kastner

Evaluation of transmission based image quality optimisation for X-ray computed tomography..... 241

Dimensional Measurement and Special Applications..... 251

V. C. Nardelli, M. C. Porath, F. A. Arenhart, G. D. Donatelli

Modular test parts to assess the quality of computed tomography dimensional measurements.. 253

S. Reisinger, M. Schmitt, V. Voland

Geometric adjustment methods to improve reconstruction quality on rotational cone-beam systems..... 261

M. Baer, M. Hammer, M. Knaup, I. Schmidt, R. Christoph, M. Kachelrieß

Scatter Correction Methods in Dimensional CT..... 271

A. Amirkhanov, M. Reiter, J. Kastner, E. Gröller, C. Heinzl

Evaluation of Projection-Based Metal-Artifact Reduction for Multi-Material Components.... 279

J. Kroll, I. Effenberger, A. Verl

Adaptive Preprocessing and Segmentation for a Region-based Surface Extraction Method.... 289

I. Tiseanu, T. Craciunescu, F. Cotorobai, K. Mergia, C. Dobrea, A. Sima

X-ray tomography for micro-structural characterization of fusion technology relevant composite materials..... 297

M. Tóth, G. Moser, C. Gusenbauer

Analysis of the middle ear mechanics with micro-CT..... 307

Poster

Analysis and Algorithms..... 311

T. Riedel

Evaluation of 3D fiber orientation analysis based on x-ray computed tomography data..... 313

<i>O. Paetsch, D. Baum, K. Ehrig, D. Meinel, S. Prohaska</i> Automated 3D Crack Detection for Analyzing Damage Processes in Concrete with Computed Tomography	321
<i>A. Sima, I. Tisceanu</i> Tomographic reconstruction implemented on uniprocessor, quad-processor and Nvidia graphic processor systems.....	331
<i>J. Charwat-Pessler, E. Wernersoon, B. Plank, M. Musso, K. Entacher, P. Schuller-Götzburg, G. Standfest, B. Mies, A. Petutschnigg</i> 3D Analysis of heterogenous and biogenic structures based on bone augmentation material...	339
Dimensional Measurement.....	343
<i>D. Weiß, Q. Shi, C. Kuhn</i> Measuring the 3D resolution of a micro-focus X-ray CT setup.....	345
<i>Y. Tan, K. Kiekens, F. Welkenhuyzen, J.-P. Kruth, W. Dewulf</i> Beam hardening correction and its influence on the measurement accuracy and repeatability for CT dimensional metrology applications.....	355
<i>R. Schmitt, C. Isenberg, C. Niggemann</i> Knowledge-Based System to improve dimensional CT Measurements.....	363
CT-instrumentation and Others.....	373
<i>L. Franco</i> Quality control phantoms and protocol for a tomography system.....	375
<i>M. Maisl, C. Schorr</i> Computed laminography using a priori information.....	383
<i>O. Brunke, F. Hansen, I. Stuke, F. Butz, F. Jeltsch</i> A new Concept for High-Speed atline and inlineCT for up to 100% Mass Production Process Control allowing both, 3D metrology and failure analysis.....	385
<i>N. Turrini, E. Voltazza, M. Simon, S. Schadek</i> First Article Inspection of Aluminium Castings by Computed Tomography.....	393
<i>P. Jacobs</i> Towards a ‘Society for Tomography’	399

Appendix

Index of Authors.....	401
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