List of accepted contributions

Keynotes

New developments in X-ray CT metrology for Industry 4.0
Prof. Wim Dewulf, KU Leuven, BE
New applications of X-ray CT to characterisation and failure analysis in composite materials
Prof. Ian Sinclair, University of Southampton, UK

Session ''New Methods & Optimization'' - Oral contributions

Helical XCT measurement for correlative imaging
Adam Brinek, Brno University of Technology, CZ
Spatial Resolution Enhancement Based on Detector Displacement for Computed Tomography
Kaicong Sun, University of Stuttgart, DE
Scatter Correction for Industrial Cone-Beam Computed Tomography (CBCT) Using VSHARP, a fast GPU-Based Linear Boltzmann Transport Equation Solver
Amy Shiroma, Varex Imaging Corporation, USA
Artifact reduction in X-ray computed tomography by multipositional data fusion using local image quality measures
Gabriel Herl, Fraunhofer Entwicklungszentrum Röntgentechnik, DE
Flexible solutions for lab-based phase contrast and dark field CT and micro-CT
Alessandro Olivo, University College London, UK
Simulated Talbot-interferometer x-ray phase contrast images with CFRP-like objects
Jonathan Sanctorum, University of Antwerp, BE

Session ''Algorithms & Reconstruction'' - Oral contributions

An Interactive Visual Comparison Tool for 3D Volume Datasets represented by Nonlinearly Scaled 1D Line Plots through Space-filling Curves
Johannes Weissenböck, University of Applied Sciences Upper Austria, AU
Virtual CT of complex and noisy scanning trajectories using aRTist
Carsten Bellon, Bundesanstalt für Materialforschung und -prüfung, DE
Strategies in cone beam CT inspection of cylindrical objects
Wannes Goethals, Ghent University, BE
Accurate surface extraction on CT volume using analytical gradient of FDK formula
Yukie Nagai, The University of Tokyo, JP
Digging Deeper into High Resolution X-ray Computed Tomography Reconstruction
Emre Topal, TU Dresden, Dresden Center for Nanoanalysis, DE

Session ''Metrology'' - Oral contributions

Comparison of different measures for the single point uncertainty in industrial X-ray computed tomography
Andreas Michael Müller, Friedrich-Alexander-University Erlangen-Nuremberg, DE
Software-based compensation of CT instrument misalignments
Evelina Ametova, Katholieke Universiteit Leuven, BE
CT geometry determination using individual radiographs of calibrated multi-sphere standards
Benjamin A. Bircher, Federal Institute of Metrology METAS, CH
Uncertainty for Uncorrected Measurement Results in X-ray Computed Tomography
Herminso Villarraga-Gómez, Nikon Metrology, Inc., USA

Session ''Metrology & Manufacturing'' - Oral contributions

Investigating of the influence of the workpiece placement on the uncertainty of measurements in the industrial computed tomography
Natalia Grozmani, RWTH Aachen University, DE
Experimental investigation on the accuracy of CT measurement of fiber length in fiber reinforced polymers
Filippo Zanini, University of Padova, IT
Sinogram interpolation to decrease acquisition time in X-ray computed tomography measurement of surface topography
Lars Körner, Univeristy of Nottingham, UK
Uncertainty Evaluation of Pore Analysis for Additively Manufactured Parts using Cross Sections
Leonard Schild, wbk Institute of Production Science, Karlsruhe Institute of Technology (KIT), DE
Characterization of resolution performance of novel high energy X-CT : eXTRACT
Katsutoshi Sato, Hitachi Ltd, JP

Session ''NDT'' - Oral contributions

Fast detection of cracks in ultrasonically welded parts by inline X-ray inspection
Eline Janssens, imec - Vision Lab, BE
Comparison of X-ray computed tomography and immersion ultrasonic non-destructive testing techniques in the case of qualitative and quantitative assessment of brazing quality level
Mariusz Jedrychowski, CERN, CH
A Novel Approach for Immediate, Interactive CT Data Visualization and Evaluation using GPU-based Segmentation and Visual Analysis
Harald Steinlechner, VRVis Research Center, AU
Virtual qualification of novel heat exchanger components with the image-based finite element method
Llion Evans, Swansea University, UK

List of accepted contributions

Session ‘‘Materials characterization’’ - Oral contributions

MultiScale and MultiTime Image-Based Control and Characterization of Lithium-Ion Batteries and Materials
Remi Blanc, Thermo Fisher Scientific, FR

In-situ computed tomography investigation of the compression behaviour of strut, and periodic surface lattices
Anton Jansson, Örebro University, SE

X-ray microtomography study of pellet/powder bentonite mixture upon wetting
Agustin Molinero Guerra, Ecole des Ponts ParisTech, CNRS, IFSTTAR, Laboratoire Navier/CERMES, FR

Use of the industrial X-ray computed microtomography to address scientific questions in developmental biology
Markéta Tesařová, Central European Institute of Technology, Brno University of Technology, CZ

Quantitative pore network analysis and permeability evaluation of porous carbonate reservoir rocks using X-ray computed microtomography images
Miller Zambrano, University of Camerino, GeoMORE s.r.l., IT

Session ‘‘NDT, Materials & Manufacturing’’ - Oral contributions

Characterisation of fiber lay-up and defects in CFRP using Talbot-Lau grating interferometry
Sascha Senck, University of Applied Sciences Upper Austria, AU

Combining a Computed Laminography Approach with Tomographic Analysis for a Study of Weld Joints
Marius Costin, The French Alternative Energies and Atomic Energy Commission (CEA), FR

Defect detection in 3D printed carbon fibre composites using X-ray Computed Tomography
Jeroen Soete, Katholieke Universiteit Leuven, BE

Process characterization for moulding of paper bottles using computed tomography and structure tensor analysis
Prateek Saxena, Technical University of Denmark, DK

Methodology of precise In-Situ tensile/compression measurements
Sebastian Wronski, AGH - University of Science and Technology, PL

Short Talks

Generating Meaningful Synthetic Ground Truth for Pore Detection in Cast Aluminum Parts
Patrick Fuchs, Interdisciplinary Center for Scientific Computing (IWR), Heidelberg University, DE

Synchrotron based absorption edge tomography for the analysis of 3D printed polymer embedded MOF
Christian Gollwitzer, Bundesanstalt für Materialforschung und -prüfung, DE

Analysis of Cone Beam Artefact Influences with Respect to Calibration of Metrology Qualified X-Ray Computed Tomogrophy Systems
Dierck Matern, YXLON International GmbH, DE

Development of 950 kV X-ray source with small focal spot using a linear accelerator
Norihito Matsunaga, Nikon Corporation, JP

Thicknes Measurement of Metal Plate Using CT Projection Images and Nominal Shape
Tasuku Ito, The University of Tokyo, JP

Realistic Image Synthesis of Imperfect Specimens using Generative Networks
Deniz Neufeld, Pattern Recognition Lap, Friedrich-Alexander-Universität Erlangen-Nürnberg, DE

Tools for the Analysis of Datasets from X-Ray Computed Tomography based on Talbot-Lau Grating Interferometry
Bernhard Fröhler, University of Applied Sciences Upper Austria, AU

Effect of iterative sparse-view CT reconstruction with task-specific projection angles on dimensional measurements
Lorenz Butzhammer, Institute of Manufacturing Metrology, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), DE

A low-cost and easy-to-use phantom for cone-beam geometry calibration of a tomographic X-ray system
Van Nguyen, imec - Vision Lab, Department of Physics, University of Antwerp, Belgium, BE

A Gaussian filter for complex profile filtration
Luca Pagani, University of Huddersfield, UK

Possibilities and Limitations of Automatic Feature Extraction shown by the Example of Crack Detection in 3D-CT Images of Concrete Specimen
Olaf Paetsch, Zuse Institut Berlin (ZIB), DE

Mapping Performance of CT
Nick Brierley, The Manufacturing Technology Centre, UK, UK

MUSICES - Musical Instrument Computed Tomography Examination Standard: The Final Report Featuring Methods for Optimization, Results of Measurements, Recommondations, Check-lists and Meta-Data Models
Theobald Fuchs, Fraunhofer Institute Integrated Circuits, Department for X-ray Technology, DE

Guiding CT Uncertainty Evaluation by the Measurement Realization Process
Crhistian Baldo, Federal University of ABC, BR

Optimisation of surface determination to improve the accuracy and repeatability of detecting unfused powder in AM Aluminum component
Ahmed Tawfik, Huddersfield University, UK

Analysis of bone microdamage with Twinned Orthogonal Adjustable Tomograph towards fatigue fracture prevention
Gerardo Presbítero, Institute of Theoretical and Applied Mechanics, Centre of Excellence Telč, Academy of Sciences of the Czech Republic, CZ

On nominal-actual comparisons for additive manufacturing applications
Fabien Léonard, Bundesanstalt für Materialforschung und -prüfung, DE

An experimental study on segmentation in X-Ray Computed Tomography
Stefano Petrò, Politecnico di Milano, IT

Custom-made software tool for the automatic implementation of surface extraction methods based on gradient operators
Roberto Jimenez-Pacheco, Centro Universitario de la Defensa - Zaragoza, ES

Comparison of different voxel size calibration strategies
Marko Katic, FSB, HR

List of accepted contributions

Short Talks

Back-projection Filtration Image Reconstruction Approach for Reducing Out-of-plane Artifacts in Laminography
Jeongtae So, Korea Advanced Institute of Science and Technology, KR
A method and data pipeline for real-time tomographic cross-sections visualization and analysis
Eusebio Solórzano, Novadep Scientific SL, ES
Simulation-based sensitivity analysis of geometrical misalignments in X-ray computed tomography systems for dimensional metrology
Elia Sbettega, University of Padova, IT
Modelling of focal spot intensity distribution with the aid of spatial resolution limit obtained with star pattern
Markus Baier, University of Padova, IT

Poster Exhibition

CT machine geometry changes under thermal load
Benjamin A. Bircher, Federal Institute of Metrology, METAS, CH
Comparison of CT and SEM for bone morphometric indices
Kudakwashe Jakata, Evolutionary Studies Institute, University of the Witwatersrand, ZA
How to improve mechanical in-situ test during micro-CT measurements
Jacek Tarasiuk, AGH University of Science and Technology, PL
Convolutional neural networks for reduction of scatter and beam hardening artefacts in industrial computed tomography
Ruben Pauwels, Katholieke Universiteit Leuven, BE
Synchronous dual energy tomography system
Pablo Pérez, University of Valladolid, ES
Investigation of positioning accuracy of industrial robots for robotic-based X-ray computed tomography
Peter Landstorfer, Fraunhofer, DE
Fast 2-dimensional Contour Reconstruction for Industrial Computed Tomography using Crease Cluster
Maximilian Wattenberg, Institut für Medizintechnik, Universität zu LübeckInternational GmbH, DE
Characterization and calibration of high resolution lab-based CT system with small field of view
Pavel Blažek, Central European Institute of Technology, CZ
Suppression of residual gradients in the flat-field corrected images
Michal Vopalensky, Institute of Theoretical and Applied Mechanics, Centre of Excellence Telc, Czech Academy of Sciences, CZ
CAD-based defect inspection with optimal ROI selection based on polychromatic X-ray projection images
Alice Presenti, University of Antwerp, BE
Report of the Progress on a Laboratory X-Ray Source Based Computed Tomographic System at 9.25 keV
Dominik Müller, University of Würzburg, DE
Verifying the measurement accuracy for X-ray cone-beam CT scans of objects smaller than 5 mm diameter
Daniel Weiss, Carl Zeiss IMT GmbH, DE
Combined use of HeliScan µCT, ELITE and FIB-SEM systems for multi-modal and multi-resolution manufacturing quality control
Grzegorz Pyka, Thermo Fisher Scientific, CZ
Lab-based Diffraction Contrast Tomography (LabDCT) for Materials Microstructure Characterization in Industry Applications
Christian Holzner, Xnovo Technology ApS, DE
Porosity determination in additively manufactured Ti parts using X-ray tomography
Jonathan Glinz, University of Applied Sciences Upper Austria, AU
X-ray CT on modeling steel parts made by selective-laser-melting
Ramil Gainov, Institute ZEA-1, Forschungszentrum Jülich GmbH, DE
Characterization of the effects of detector angular misalignments and accuracy enhancement of X-ray CT dimensional measurements
Valentina Aloisi, North Star Imaging, US
Utilization of single point uncertainties for geometry element regression analysis in dimensional X-ray computed tomography
Andreas Michael Müller, Institute of Manufacturing Metrology, Friedrich-Alexander-Universität Erlangen-Nürnberg, DE
High Energy 750kV Microfocus X-ray Sources for Quality Control on Large Metal Printed Parts
David Bate, Nikon Metrology, UK
Non-destructive testing of microelectronic devices using a laboratory multipurpose diffractometer
Natalia Dadivanyan, Malvern Panalytical B.V., NE
Geometry Compensation of 3DPrinted Parts
Gerd Schwaderer, Volume Graphics GmbH, DE
A Curvelet based Sinogram Correction Method for Metal Artifact Reduction
Kiwan Jeon, National Institute for Mathematical Sciences, KR
Fusion of the XCT, XRF and back scattered data to characterize multi-layer coating of the middle age artifact
Daniel Vavrik, Institute of Theoretical and Applied Mechanics, CZ
Evaluation of the uncertainties in X-ray spectral estimation using transmission measurements
Wenchao Cao, Katholieke Universiteit Leuven, BE
X-ray sources for high throughput and extreme resolutions
Emil Espes, Excillum AB, SE
Validation of a Method for the Optimization of Scan Parameters for Measuring with ComputedTomogography
Raoul Christoph, TU Dresden, Werth Messtechnik GmbH, Deutsches Krebsforschungszentrum, DE
Optimization of multiple axes control for metal artifact reduction in X-ray CT
Toru Kano, Tokyo University of Technology, Shinshu University, JP
Roughness Investigation of SLM Manufactured Conformal Cooling Channels Using Computed Tomography
Christopher Klingaa, Technical University of Denmark, DE
A versatile and compact laminography/tomography system
Pablo Pérez, University of Valladolid, ES
15 MeV CT for very large objects
Nicolas Estre, The French Alternative Energies and Atomic Energy Commission (CEA), FR

Poster Exhibition

An attempt to detect anomalies in CT-data of car body parts using machine learning algorithms
Thomas Schromm, BMW AG, DE

CCD and scientific-CMOS detectors for submicron laboratory based X-ray Computed tomography
Jakub Salplachta, Central European Institute of Technology, Brno University of Technology, CZ

Microstructural analysis of cement materials by lab and beamline techniques
Luca Valentini, University of Padova, IT

Effect of gravity on porosity and surface roughness of SLM IN-625 parts
Tobias Thiede, Bundesanstalt für Materialforschung und -prüfung, DE

Spot size and detector unsharpness determination for numerical measurement uncertainty determination
Christian Orgeldinger, Institute of Manufacturing Metrology, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), DE

Self-calibrating helical micro-CT and computed tomography dimensional measurements
Trond Varslot, Thermo Fisher Scientific, CZ

Morphological study of defects in laminated joints of composite materials using microCT
Cintia Guimarães Ferreira, Nuclear Engineering Program, Nuclear Instrumentation Laboratory, COPPE/UFRJ, BR

Case studies of predictive analysis and casting process optimization based on CT scans
Marco Giogoli, Metrix3D, IT

Using CT to Image and Investigate the Effect of Low-Velocity Impact Damages on the Structure of Fiber Reinforced Polymer Samples
Crhistian Baldo, Federal University of ABC, BR

Error Investigations for a CT and Additive Manufacturing based Reverse Engineering Workflow
Fabian Bauer, Siemens Corporate Technology, DE

300kV Open Type Microfocus X-ray source for Industrial X-ray CT
Masayuki Hirano, Hamamatsu Photonics K.K., JP

Synthesis and characterization of metal-ceramic composite 316l/sycro
Haimon Alves, State University of Rio de Janeiro, BR

Shape analysis for grains and pores on 3d digital images
Fabian Biebl, Math2Market GmbH, DE

Study of keyhole-porosities in selective laser melting using X-ray computed tomography
Aditi Thanki, , Katholieke Universiteit Leuven, BE

Automated ROI Localization On Tomographic Projections
Marina Chukalina, Shubnikov Institute of Crystallography FSRC "Crystallography and Photonics" RAS, RU

3-in-1 X-ray Computed Tomography
Nathanael Turner, The Manufacturing Technology Centre, UK

Is the metrotomography a reliable method to measure the dimensional and geometric specifications of technical parts? CT machine versus CMM machine - A practical approach
Fernando Ferreira, CATIM - Technological Center for the Metal Working Industry, PT

Infrared thermography and method of finite elements applied to thermal nondestructive characterization in rails networks
Sougrati Belattar, Cadi Ayyad University, Faculty of sciences, MA

Understanding and improving ultrasonic inspection of the forging titanium alloy
Teodor Tranca, DIAC SERVICII srl, RO

On the impact of probing errors on form measurement in Computed Tomography
Filippo Montanari, Technical University of Denmark, DK

On the systematic design of calibration artefacts for Computed Tomography
Leonardo De Chiffre, Technical University of Denmark, DK

X-ray and FTIR μ-CTs for morphological and chemical characterization of eco-sustainable insulating foams
Sandro Donato, Universita' degli Studi di Trieste, INFN Trieste, IT