

## Annual International DIC Society Conference November 6 – 9, 2017 in Barcelona, Spain

<http://idics.org/idics-2017>

### Organized Topics

- Volumetric DIC
- Material identification
- Bio/Soft Materials
- Large Scale Structures
- Modal and Vibration Analysis
- Other Full-field Methods
- DIC Uncertainty Quantification
- Testing and Material Characterization
- High-Speed and Ultra-high Speed DIC
- Vendor Sessions

### Committee Meetings

- Standards & Best Practices – Mark Iadicola
- Training & Certification – Tim Schmidt
- Applications – Dave Dawicke
- Education – Mark Pankow
- DIC Challenge – Phillip Reu

### Monday Courses (November 6)

- DIC User Variables and Data Tuning – *Instructor: Tim Schmidt, Trilion/GOM*
- Material Identification and Model Validation via Full-Field Measurements – *Instructor: Pascal Lava MatchID*
- An Introduction to GOM Correlate – *Instructor: Markus Klein GOM*
- Combining DIC and FFT for High Speed Vibration Analysis – *Instructor: Micah Simonsen*
- Good and Bad DIC Practices and Recognizing the Difference – *Moderators: Mark Iadicola (NIST), Phillip Reu (Sandia) and a broad panel of experts.*

### Plenary Sessions



Dr. François Hild (*L.M.T. Cachan*)  
Title: “On the integration of measured data in numerical simulations at the microscale”



Dr. Katia Genovese (*University of Basilicata*)  
Title: “Not-conventional DIC methods for biomechanical applications”

### Mission: Extend – Improve – Train

Extending the Frontiers: Training the next Generation:  
Standardizing for Industry: Improving our Practice

### iDICS Board

Michael Sutton  
(Pres.)  
Phillip Reu  
(V. Pres.)  
Markus Klein  
(Corporate Rep.)  
Samantha Daly  
David Dawicke  
José Freire  
Mark Iadicola  
Jean-Noël Périé  
Hubert Schreier  
Daniel Turner  
Wei-Chung Wang



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### Crowne Plaza Barcelona

#### Fira Center

Avenida Rius I Taulet, 1-3, Barcelona, Spain



## Overview Schedule

Time	Monday, November 06, 2017	Tuesday, November 07, 2017	Wednesday, November 08, 2017	Thursday, November 09, 2017
7:30 AM		Breakfast - Buffet until 8:45 for hotel guests	Breakfast - Buffet until 8:45 for hotel guests	Breakfast - Buffet until 8:45 for hotel guests
8:30 AM				
9:00 AM		Plenary: Committee Chairs (1hr)	Prof. Katia Genovese	Prof. Francois Hild
10:00 AM	Morning Classes	Morning Coffee Break/Vendor	Morning Coffee Break/Vendor	Morning Coffee Break
10:40 AM	P. Lava - Material ID	3 Parallel Sessions	3 Parallel Sessions	3 Parallel Sessions
11:00 AM	M. Simonsen - DIC and FFT	S1: VDI	S7: Bio2	S19: Volumetric
11:20 AM	T. Schmidt - DIC Variables	S2: Material: Metals1	S8: Uncertainty Quantification1	S20: Vendor2
11:40 AM	See flier for details	S3: Civil: Structural	S9: Failure1	S21: Advances in DIC
12:00 PM		Lunch Buffet (1 hr)	Lunch Buffet (1hr)	Lunch Buffet (1 hr)
1:00 PM		3 Parallel Sessions	3 Parallel Sessions	3 Parallel Sessions
1:20 PM	Lunch	S4: Bio1	S10: Bio3	S22: Validation
1:40 PM		S5: Material: Metals2	S11: Material:Composite	S23: High-Speed1
2:00 PM		S6: Civil: Material	S12: Failure2	S24: Vendor3
2:20 PM	Afternoon Classes	Afternoon Coffee Break/Vendor	Afternoon Coffee Break/Vendor	Afternoon Coffee Break
3:00 PM	Panel - Good and Bad DIC	<b>Committee Meetings (2 hrs.)</b>	3 Parallel Sessions	3 Parallel Sessions
3:20 PM	M. Klein - Intro to GOM	1. Standards/Good Practices	S13: Modal	S25:
3:40 PM	See flier for details	2. Education	S14: Material: Methods	S26: High-Speed2
4:00 PM			S15: Full-field Measurements	S27: Uncertainty Quantification2
4:20 PM			Afternoon Snack/Vendor	End of Conference
4:40 PM			3 Parallel Sessions	
5:00 PM	Mandatory Vendor Meeting	Afternoon Snack/Vendor	S16: Material: Additive	Board Meeting
5:20 PM		<b>Committee Meetings (2 hrs.)</b>	S17: Vendor1	
5:40 PM	Preliminary Board Meeting	3. Training/Certification	S18: Advances in DIC	
6:30 PM		4. Applications	DIC Challenge Meeting	
7:00 PM	President's Reception		Dinner on your own	
9:00 PM		Banquet		

### Mission: Extend – Train – Standardize – Improve

Extending the Frontiers: Training the next Generation: Standardizing  
for Industry: Improving our Practice

# INTERNATIONAL DIGITAL IMAGE CORRELATION SOCIETY

## Detailed Schedule

	Rubi	Rossini 1	Rossini 2
<b>Tuesday Morning</b>	<b>Standards (VDI) - Chair: Mark Iadicola</b>	<b>Material: Metals1 - Chair: Dave Dawicke</b>	<b>Civil: Structural - Chair: Tim Schmidt</b>
<b>10:40 AM</b>	VDI/VDE Standardization Activities of DIC Measurement Techniques Werner Daum	Calibration of Viscoplastic Material Models for 304L Stainless Steel using DIC and the Virtual Fields Method Elizabeth Jones	A Local/Global Approach to Structural Identification Using 3D Digital Image Correlation Devin Harris
<b>11:00 AM</b>	Examples of test equipment and methods for determining the displacement error of camera-based DIC system Horst Nagel, Markus Klein	Experimental study of strain localization processes of carbon steel on the postcritical deformation stage by using of DIC-technique Mikhail Tretyakov	Measurement of consistent boundary conditions through integrated DIC: application to a structural test performed on a composite plate Jean-Noel Perie
<b>11:20 AM</b>	Example of Zero Deformation / Strain Test Thorsten Siebert	Localized strain fields in metastable austenitic steels determined using $\mu$ -DIC Anja Weidner	Bridge Health Monitoring Using Machine Vision Technology: Theoretical and Experimental Study Xiao-Wei Ye
<b>11:40 AM</b>	Artificially embodied strain for validation test of DIC systems Bachir Belkassem, Peter Mäckel	Efficient identification strategies for Big Data Jan Neggens	
<b>Tuesday Afternoon</b>	<b>Bio1 - Chair: Paul Moy</b>	<b>Material: Metals2 - Chair: Elizabeth Jones</b>	<b>Civil: Materials - Chair: Devin Harris</b>
<b>1:00 PM</b>	Digital Image Correlation as a Measurement Tool for Heart Surgery Mikko Hokka	Application of the Heaviside-DIC to Plasticity for Polycrystalline Materials Francois Bourdin	Mechanical Performance of Cross-Laminated Timber Panels Dietrich Buck
<b>1:20 PM</b>	Novel experimental protocol based on OCT-DVC to measure 3D strain fields in aortic walls subjected to tensile loading Victor Acosta Santamaria	Determination of elastic and inelastic properties at high temperature by I-DIC Jean Gillibert	Traction-Separation Relationship for Polymer-Modified Bitumen Under Mode I Loading: Double Cantilever Beam Experiment with Digital Image Correlation Michael Sutton
<b>1:40 PM</b>	Uncertainty of 3D-DIC in cardiac strain measurements using numerically deformed stereo images Paolo Ferraiuoli	Design of an experimental procedure to study through-thickness behavior of sheet metals using DIC Attilio Lattanzi	Digital Image Correlation for Static Stress Estimation of Concrete Chung-Bang Yun
<b>2:00 PM</b>	DVC Measurement of Tissue-level Strains in the Intact Murine Knee Joint Brian Bay	Experimental Study of Spatial-time Inhomogeneity of the Plastic Flow in Metals and Alloys by using the DIC-technique and IR-analysis Tatyana Tretyakova	
<b>Tuesday Afternoon</b>	<b>Committee: Standards &amp; Good Practices</b>	<b>Committee: Education</b>	
<b>3:00 PM</b>	Chair: Mark Iadicola	Chair: Mark Pankow	
<b>5:00 PM</b>			
<b>Tuesday Evening</b>	<b>Committee: Training &amp; Certification</b>	<b>Committee: Applications</b>	
<b>5:20 PM</b>	Chair: Tim Schmidt	Chair: Dave Dawicke	
<b>7:20 PM</b>			

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	Rubi	Rossini 1	Rossini 2
<b>Wednesday Morning</b>	<b>Bio2 - Chair: Katia Genovese</b>	<b>Uncertainty Quant. - Chair: Phillip Reu</b>	<b>Material Failure1 - Chair: Francois Hild</b>
<b>10:40 AM</b>	DIC in biomedical and biomechanical applications Christoph Konig	Experimental Assessment of Noise-Induced Bias Antonio Baldi	Fatigue Crack Tip Strain Fields in Welded Steels Mapped Using DIC and EDXD Tim Wigger
<b>11:00 AM</b>	Micromechanics of the Intervertebral Disc Catherine Disney	Characterization of Spatial Resolution in DIC by using simulated 2D displacement fields Thorsten Siebert	Experimental evaluation of the crack tip plastic zone size and shape by using digital image correlation Jose Vasco Olmo
<b>11:20 AM</b>	Failure Testing of Human Femurs Rory Bigger	Are We Overconfident in the Accuracy of our DIC Measurements? Dan Turner	2D DIC Crack Tip Tracing under Mode I loading Matthias Merzkirch
<b>11:40 AM</b>	Towards an integrated modeling-simulation approach: Validation using a physical model of the pelvic system Pauline Lecomte-Grosbras	Frequency analysis of DIC speckle degradation due to motion blur Emanuele Zappa	Near tip strain measurements using a stereomicroscope 3D-DIC system Giancarlo Gonzalez
<b>Wednesday Afternoon</b>	<b>Bio3: Chair - Paul Moy</b>	<b>Material: Composites - Chair: Dave Dawicke</b>	<b>Material Failure2 - Chair: Mark Iadicola</b>
<b>1:00 PM</b>	Non-conventional DIC methods for biomedical applications Katia Genovese	Application of Multi-Scale Digital Image Correlation for Visualizing Transverse Deformation and Damage in Tape-Laminate Composites Caitlin Arndt	Coupling large strain and high speed DIC for dynamic crack growth characterization in elastomers Michel Coret
<b>1:20 PM</b>	Optical elastography: elastic property estimation by tracking surface waves with Digital Image Correlation Aline Bel-Brunon	Elevated Temperature DIC on CMC Composites for Property Characterization Techniques Janelle Chambers	Fracture Toughness Evaluation using Digital Image Correlation (DIC) Measurement Yan Li
<b>1:40 PM</b>	A Study on the Full-Field Deformation Behavior for Specimen Geometry of Different Aspect Ratio Paul Moy	DIC Data-Driven Methods to Verify Simplifying Assumptions in Material Properties of Laminated Composites Guillaume Seon	Tensile Kolsky Bar Studies: Image-based Measurements During the Early Transient Loading Period Michael Sutton
<b>2:00 PM</b>	PDE-Constrained Optimization for Heterogeneous Mechanical Property Estimation of Biomaterials Tom Seidl	Evaluation of Short Ultra-High-Molecular-Weight Fiber Effect on Tensile Strength of Self-Reinforced Polyethylene Composite Naoya Tada	
<b>Wednesday Afternoon</b>	<b>Modal - Chair: Chris Niezrecki</b>	<b>Material: Methods - Chair: Elizabeth Jones</b>	<b>Full-field Measurements - Chair: Dan Turner</b>
<b>3:00 PM</b>	A Multi-view DIC Technique for Extracting Mode Shapes and Operating Deflection Shapes of Structures Javad Baqersad	Marker-free GPU-based Digital Image Correlation System for High-Temperature Strain-Controlled Fatigue Measurements Andreas Blug	Shape, displacement and strain measurements of structures with Virtual Image Correlation method Maxime Baconnais
<b>3:20 PM</b>	Modal identification from experimental transmissibility functions employing HS-3D-DIC Luis Felipe-Sese	Quantifying the effectiveness of different sample preparation methods and DIC parameters for characterization of plastic strain localization in copper Sven Bossuyt	On the calibration of the Grid Method Benoit Blaysat
<b>3:40 PM</b>	Operational Modal Analysis of DIC data by means of Time Domain Decomposition (TDD) Alberto Lavatelli	Stress field evaluation from DIC measurements Julien Rethore	Using the diffraction efficiency of blazed gratings for application spectral dispersion characteristics Mohammedi Ferhat
<b>4:00 PM</b>	Full-Field Inspection of a Utility-Scale Wind Turbine Blade Using a Multi-Camera Based Measurement System Christopher Niezrecki	Multi-Camera DIC offers new dimensions in Material Testing Thorsten Siebert	A general time-integrated DIC framework based on hierarchical mapping functions: Application to SEM artifacts correction Siavash Maraghechi
<b>Wednesday Evening</b>	<b>Material: Additive - Chair: Enrico Quintana</b>	<b>Vendor1 - Chair: Dave Dawicke</b>	<b>Advances in DIC - Chair: Benoit Blaysat</b>
<b>4:40 PM</b>	Characterization of Additively Manufactured Metals Using DIC Janelle Chambers	Image Systems Motion Analysis Tomas Almgren	X-Ray based Digital Image Correlation for Fluid-Structure Interactions Enrico Quintana
<b>5:00 PM</b>	Standardization of Additively Manufactured Cellular Testing Utilizing Digital Image Correlation Elton Clark	MatchID ... metrology beyond colors? Jahnabi Basumatary	Using the temporal information to increase the spatial resolution of a DIC measurement Marco Rossi
<b>5:20 PM</b>	Optimal Measurement Aggregation for Multi-Experiment Identification Jan Neggers	New analysis and evaluation methods with integration of digital image correlation for the reliability analysis of electronic systems Michael Eichhorst	Variable Ray Origin Camera Models for Accurate DIC Measurements Through Glass and Glass/Water Interfaces Hubert Schreier
<b>5:40 PM</b>		Establishing a one-to-one relationship between FEA and DIC: pitfalls and solutions Pascal Lava	Extending DIC to Stress Analysis Arbitrarily-Shaped Structure Containing an Irregularly-Shaped Hole Abdullah Alshaya
<b>6:30 PM</b>	<b>DIC Challenge Meeting</b>		



	Rubi	Rossini 1	Rossini 2
<b>Thursday Morning</b>	<b>Volumetric - Chair: Brian Bay</b>	<b>Vendor2 - Chair: Tim Schmidt</b>	<b>Advances in DIC - Chair: Janelle Chambers</b>
<b>10:40 AM</b>	Experimental Approach to investigate Uncertainties of volumetric digital image correlation Thomas Rief	Optical 3D Metrology in Modern Product Development Markus Klein	Extending DIC to Stress Analysis Arbitrarily-Shaped Structure Containing an Irregularly-Shaped Hole Abdullah Alshaya
<b>11:00 AM</b>	Study Damage Evolution of GMBs using XCT Imaging Helena Jin	DIC evolving from research to a portable toolbox solving Industrial customer's application needs Christoph Konig	Robust characterization of the workpiece distortion during its milling thanks to Global DIC Guillaume Rebergue
<b>11:20 AM</b>	Unveiling 2D and 3D Deformations in Coatings and Composites by Digital Image Correlation Xiaodong (Chris) Li	Recent Enhancements in Stereo Calibration Methods for Single and Multiple Stereo Digital Image Correlation Systems Alistair Tofts	Multi-View Registration From Rigid Body Motions Micah Simonsen
<b>11:40 AM</b>	Application of Digital Volume Correlation to in-situ zirconia phase transformation Kamel Madi		Accelerate Multi-thread DIC by Minimizing Competition between Threads for High Speed Deformation Measurement Jiaqing Zhao
<b>Thursday Afternoon</b>	<b>Validation - Chair: Alessandro Vieira</b>	<b>High-Speed1 - Chair: Rory Bigger</b>	<b>Vendor3 - Chair: Markus Klein</b>
<b>1:00 PM</b>	Validation of a composite bumper : from FE to DIC and back Renaud Gras	Ultra-High Speed Structural Measurement Technique Development and Validation David Dawicke	The use of Flat Topped Pulsed Laser for DIC Frank Kosel
<b>1:20 PM</b>	3D DIC Instant measurements in aircraft wheels qualifications tests Christopher Simond	High Speed 3D Digital Image Correlation Applied to a Glowing Stainless Steel Plate David Ehrhardt	In-situ Meso-Scale Mechanical Testing in the SEM Charles Spellman
<b>1:40 PM</b>		Application of Digital Image Correlation to Ballistic Testing Phillip Jannotti	DVIC : CORTO Project :CORrelation from TOMographic pictures Stephanie Jaminion
<b>2:00 PM</b>		The DIC measurement of blasting stress waves and superposed strain field induced by blasting and static compress loading Yang Li-yun	
<b>Thursday Afternoon</b>		<b>High-Speed2 - Chair: Nate Gardner</b>	<b>Uncertainty Quant.2 - Chair: Phillip Reu</b>
<b>3:00 PM</b>		Dynamic Response of 5083 Aluminum During Taylor Impact Using Digital Image Correlation Rory Bigger	Evaluation of external errors relating to portable use of Digital Image Correlation Scott Matthews
<b>3:20 PM</b>		Capturing Strain Localization due to Micro-Cracking in Carbon Fiber Laminates at High Strain Rates using High-Speed DIC Jaspar Marek	Feasibility study of DIC on a drone and the impact on DIC uncertainty Ruben Balcaen
<b>3:40 PM</b>		Simultaneous Stereo Digital Image Correlation and Pressure-Sensitive Paint Measurements of a Compliant Panel in a Mach 2 Wind Tunnel Daniel Ogg	Distortion of DIC Displacements and Strains from Heat Waves Elizabeth Jones
<b>4:00 PM</b>		Fine-tuning ultrahigh speed DIC analysis to accurately capture dynamic rupture phenomena Vito Rubino	Accuracy Improvements and Meaningful Error Metrics for Stereo System Calibration Hubert Schreier

# INTERNATIONAL DIGITAL IMAGE CORRELATION SOCIETY

## Class Descriptions

Monday, November 6, 2017 Morning Classes, 9:30 AM to 1:00 PM

Class cost: \$350 full day (any two classes) and \$175 half day (any one class). [www.iDICS.org](http://www.iDICS.org) to register.

### Model Validation and Material Identification Via Full-Field Data

#### COURSE DESCRIPTION

Digital Image Correlation (DIC) is gradually becoming a standard tool in experimental mechanics, for both industry and academia. Despite the fact that the measurement system is often sold with the argument of being easy in use and setup, a poor understanding of issues arising in the whole measurement chain (imaging, noise, correlation algorithm, smoothing, ...) can result in poor or misinterpreted results. In this course, special attention is paid to MatchID's solutions to material identification and model validation with a quantitative interpretation of the results. In particular, it is illustrated how DIC uncertainties impact the identified properties and final model validation decisions.

Having access to the spatial distribution of strains at the surface of the material via DIC enables the use of more complex test configurations to identify the mechanical behavior of materials via the Virtual Fields Method (VFM). This method is now fully integrated into MatchID's analysis platform allowing a seamless coupling with DIC data. This method is an alternative to Finite Element Model Updating over which it has a number of specific advantages, among which much shorter computation times. Both linear and non-linear model examples will be included. It is demonstrated how DIC's resolution and spatial resolution might influence the final identified material properties. A methodology is presented to both evaluate the measurement performance and to optimize the test setup.

In a second slot, the above mentioned concepts are then adopted to get an intuitive feeling on how MatchID approaches the validation of an FEA model. The methodology relies on the use of synthetic speckle image deformation to produce validation maps of finite element models from DIC data. The underpinning novelty is the fact that it takes into account the filtering effects of DIC, which according to MatchID, is a compulsory step to obtain robust validation. Again, the ideas are outlined based on practical examples with a clear demonstration of MatchID's finite element validation module.

The principal goal of this workshop is not to provide a detailed theoretical study on DIC, VFM and FEA validation, but to focus on possible problems and general concepts via practical examples and how this is all integrated within MatchID.

#### WHO SHOULD ATTEND

Practitioners of DIC at post graduate level working in both academia and industry. In addition, engineers and researchers who have an interest in the use of full-field strain measurements to extract mechanical properties of materials or validate FEA models. Basic knowledge of DIC is required.

### DIC and FFT

#### COURSE DESCRIPTION

This class will be a hands-on tutorial in setting up and acquiring data for DIC with FFT, starting from calibration and high-speed acquisition setup and continuing through test image acquisition. Data in hand, we will then look at the details of data processing and analysis with special attention to the FFT module. We will also discuss the advantages of FFT processing and the enhancements in available displacement and strain resolution using this method.



The workshop is led by Dr. Pascal Lava from MatchID – Metrology beyond colors, Belgium. He brings a wealth of experience in the practical application/data analysis of DIC and the identification of mechanical material properties. <http://www.matchidmbc.com>



Micah Simonsen  
The workshop is led by Senior DIC Technician from Correlated Solutions Inc.

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# INTERNATIONAL DIGITAL IMAGE CORRELATION SOCIETY

## Class Descriptions

Monday, November 6, 2017 Morning Classes, 9:30 AM to 1:00 PM

Class cost: \$350 full day (any two classes) and \$175 half day (any one class). [www.iDICS.org](http://www.iDICS.org) to register.

### DIC User Variables and Data Optimization Overview

#### COURSE DESCRIPTION

Although there are numerous commercial, University and DIY DIC codes, the fundamental computation accuracy, pattern matching principles, and therefore best practices, are quite similar. We are starting with pictures of patterned objects, and generating a series of 3D point clouds. The key to optimum results, assuming a high quality experimental setup with excellent patterning, calibration, and lighting, is a strong understanding of the DIC user variables.

This presentation will review the four primary user variables of DIC – subset size, subset step (point spacing), strain gauge length, and smoothing (filter) settings. What are the default values, and why? When might it be beneficial to change these default settings? How can you tell whether the virtual strain gauges are too short, or too long? What are the recommended best practices to assess and reduce noise in DIC measurements?

Practical examples from several common types of DIC tests will be shown, comparing initial and optimized data.

#### COURSE CONTENT

Upon completion of a successfully conducted high quality test, with optimum calibration and patterning, the project file is then ready for detailed analysis and reporting. DIC has powerful features and benefits, such as the ability to vary lateral resolution, virtual strain gauge length, spatial and temporal filters, and alignment of the coordinate system relative to the test object. It is essential for DIC users to be aware of default user variable settings and when it might be optimum to change them, as well as typical noise sources and how to assess and eliminate them. This course will review good practices for obtaining optimum quantitative and visual DIC data.

- Specific topics to be thoroughly covered include:
- Subset Size – Default Settings, when to Enlarge, Minimum Practical Size
- Subset Overlap/Point Spacing – Your Direct Control of Lateral Resolution
- Virtual Strain Gauge Length – Displaying and Calculating
- Most Common Noise Sources and How to Eliminate Them
- Pre-Test to Determine Static Noise
- Median Spatial Filtering to Eliminate Outlier Data Points
- Time Domain Filtering
- Coordinate System Awareness and Setting
- Sometimes Bad Strains Happen to Good Displacements
- DIC Noise vs System Noise
- Noise, Repeatability and Accuracy Assessment
- Is DIC a Trusted Instrument?
- The Visual Truth
- Quiz Questions and Answers
- How to See That Results Are Noisy, From Very Far Away
- How to Check for Over-Smoothed Data

#### WHO SHOULD ATTEND

This course is particularly well suited for both producers and users of DIC data, who are interested in maximizing its quality, and obtaining a deeper understanding of optimization processes.



The workshop is led by Mr. Tim Schmidt from Trillion Quality Systems – [schmidt@trillion.com](mailto:schmidt@trillion.com)

Tim Schmidt, Vice President of Trillion Quality Systems, is one of the most experienced practitioners of 3D image correlation and point tracking photogrammetry in the world, particularly for field tests and high speed camera applications. Tim has run tests on days, nights and weekends for more than 15 years. He has given Basic, Refresher and Advanced training to hundreds of DIC users, and provides worldwide support for challenging measurements.

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# INTERNATIONAL DIGITAL IMAGE CORRELATION SOCIETY

## Class Descriptions

Monday, November 6, 2017 Afternoon Classes, 1:30 PM to 6:00 PM

Class cost: \$350 full day (any two classes) and \$175 half day (any one class). [www.iDICS.org](http://www.iDICS.org) to register.

### Good and Bad DIC Practices and Recognizing the Difference

**Moderators: Mark Iadicola (NIST) and Phillip Reu (Sandia National Laboratories)**

**Panelists: Manuel Grewer (Lavigation), Pascal Lava (MatchID), Hubert Schreier (CSI), Tim Schmidt (Trilion/GOM), Thorsten Seibert (Dantec Dynamics), Eszter Szigeti (Airbus Operations Ltd.)**

#### COURSE DESCRIPTION

Digital Image Correlation (DIC) is a powerful full-field measurement technique that uses one or more digital cameras to acquire images of a sample and then software to analyze the images to calculate displacement and strain. DIC has been widely adopted in academia, industry and national laboratories as an important engineering measurement. Because of the power and flexibility of DIC, there are many decisions that must be made in setting up the experiment and then analyzing the results. A fundamental goal of iDICS is to “improve our practice” of DIC by better understanding these experimental trade-offs. As with any complicated topic there are areas of strong agreement and some disagreement between experts on the “best” approach to making a quality DIC measurement. As a basis for beginning the discussion, the seminar will begin with the newly completed “DIC Good Practices Guide” authored by the iDICS Standardization, Best Practices, and Uncertainty Quantification Committee. This document presents a consensus view on good practices for quasi-static stereo-DIC measurements. The moderators and panelists will discuss these topics and answer audience questions related to DIC good practice. The panel, all with deep practical DIC experience, will then share their opinions on a wide variety of DIC topics solicited from the iDICS attendees including:

- Unconventional DIC systems,
- Checking calibrations,
- Stereo-angle selection,
- Painting and speckling issues,
- And any audience questions.

Please join us for an exciting and lively discussion of any and all DIC topics.

### An Introduction Into GOM Correlate

#### Course Description

GOM Correlate enables the evaluation of 2D and 3D image series for digital image correlation and motion analysis.

This course gives an introduction into the workflows for 2D and 3D applications including image import and processing, measurement inspection and reporting. Important settings for image sampling and filtering will be discussed as well as their influences on measurement results.



Markus Klein, GOM,  
[m.klein@gom.com](mailto:m.klein@gom.com)

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