

## Monday 08 October

18:00-20:00 Registration (Grote Kerk, Oude Markt 32, 7511 GB Enschede)

18:00-20:00 WELCOME RECEPTION (Grote Kerk, Oude Markt 32, 7511 GB Enschede)

## Tuesday 09 October

08:00-17:30	Registration (Ground floor, main entrance)		
09:00-09:15 Waaier 2	Opening of ICHSIP-32 by Michel Versluis and Eleanor Stride		
09:15-10:15 Waaier 2	Plenary speaker 1: <b>Mickael TANTER (ESPCI Paris)</b> - Ultrafast Ultrasound Imaging : from Elastography to Neuroimaging and Superresolution Chair: Michel Versluis		
10:15-10:45	Coffee break (Foyer)		
<b>SESSION 1</b> Waaier 2	<b>APPLICATIONS</b> Chair: Hamid Hosano	<b>SESSION 2</b> Waaier 4	<b>IMPACT</b> Chair: Beric Skews and Graham Smith
10:45-11:10	<b>Claas-Willem VISSER</b> - Fluid mechanics for Functional Materials (invited)	10:45-11:00	<b>Katsumasa TANAKA</b> - Construction of a finite element model for collisions of a golf ball with a club during swing
11:10-11:35	<b>Je-Kyung RYU</b> - High-speed atomic force microscopy imaging of a DNA-interacting protein, condensin (invited)	11:00-11:15	<b>Sa GAO</b> - Development of a robust high-speed videogrammetric technique for the measurement of large-scale shaking table tests
11:35-12:00	<b>Martin HEINOLD</b> - Metrological challenges while recording a Saker falcon in free flapping flight (invited)	11:15-11:30	<b>John REINECKE</b> - Confirming shallow buried blast after-burn using high-speed imaging and photodiodes
		11:30-11:45	<b>Stefan MOSER</b> - High-speed X-ray imaging and 3D analysis of impact-formed fragments
		11:45-12:00	<b>Gal GOLDSTEIN</b> - Shape charge jet interaction with its surrounding using spectral analysis form color framing camera
12:00-13:30	Lunch buffet (Foyer)		
13:30-14:15 Waaier 2	Keynote speaker 1: <b>Rihito KURODA (Tohoku University)</b> Over 100 Mfps high speed global shutter CMOS image sensor Chair: Piet de Moor	13:30-14:15 Waaier 4	Keynote speaker 2: <b>Tobi DELBRUCK (ETH Zürich)</b> Using "silicon retina" event cameras for quick visual robots Chair: Eleanor Stride
<b>SESSION 3</b> Waaier 2	<b>SENSORS I</b> Chair: Piet de Moor and Jinyang Liang	<b>SESSION 4</b> Waaier 4	<b>X-RAYS I</b> Chair: Kamel Fezzaa and Eiichi Sato
14:15-14:40	<b>Michele SANNINO</b> - Review and future outlook on ultra-high-speed CMOS image sensor (invited) ( <b>WITHDRAWN</b> )	14:15-14:40	<b>Margie OLBINADO</b> - Advancing in situ materials characterization using ultra high-speed imaging with synchrotron X-rays (invited)
14:40-15:05	<b>Liam CLAUS</b> - Ultra-fast CMOS image sensor development at Sandia National Laboratories (invited)	14:40-15:05	<b>Kamel FEZZAA</b> - Ultrafast X-ray imaging and complementary techniques at 32-ID beamline of the APS (invited)
15:05-15:20	<b>Kohsei TAKEHARA</b> - An ultra-high-speed image signal accumulation image sensor of 25 Mfps, 1,220 frames and 32 × 32 pixels	15:05-15:20	<b>Wajira MIRIHANAGE</b> - Highly synchronized indentation rig for fast synchrotron X-ray imaging of impact failures ( <b>WITHDRAWN</b> )
15:20-15:45	Coffee break (Foyer)		
<b>SESSION 5</b> Waaier 2	<b>SENSORS II</b> Chair: Piet de Moor and Jinyang Liang	<b>SESSION 6</b> Waaier 4	<b>X-RAYS II</b> Chair: Kamel Fezzaa and Eiichi Sato
15:45-16:10	<b>Wilfried UHRING</b> - A multi millions frames per second CMOS sensor with digital storage (invited)	15:45-16:30	Keynote speaker 3: <b>Zenghu CHANG (University of Central Florida)</b> New generation attosecond X-rays for ultrafast spectroscopy and imaging
16:10-16:25	<b>Yasuhide TAKANO</b> - "Light in Flight" captured at the 10-ns interval with a silicon image sensor	16:30-16:45	<b>Yuichi SATO</b> - High-speed dual-energy X-ray photon counter using a YAP(Ce)-photomultiplier detector and its application to low-dose CT
16:25-16:40	<b>Oleg MESHKOV</b> - Picosecond dissector with crossed sweep	16:45-17:00	<b>Manabu WATANABE</b> - High-speed triple-energy X-ray photon counter using a CdTe detector and its application to high-energy-resolution CT
16:40-16:55	<b>Oleg MESHKOV</b> - Optimization of picosecond dissector parameters	17:00-17:15	<b>Pengfei QIANG</b> - Ray tracing and preliminary optical design for eXTP Wolter telescope mirror
16:55-17:10	<b>T. Goji ETOH</b> - A 10 Gfps and 100% fill factor silicon image sensor with a pyramid charge collector		
17:10-17:25	<b>Bart BEEMAN</b> - Advances in high dynamic range digitizers for single shot recording		
17:30-18:30	Swiss Raclette event sponsored by LyncéeTec (Foyer)		

## Wednesday 10 October

08:30-17:30 Registration (Ground floor, main entrance)			
09:00-10:00 Plenary speaker 2: <b>Javier RODRÍGUEZ RODRÍGUEZ (University Carlos III de Madrid)</b> - The memory of the bubbles Waaier 2 Chair: Michel Versluis			
10:00-10:30 Coffee break (Foyer)			
SESSION 7 Waaier 2	BIOMEDICAL APPLICATIONS Chair: Eleanor Stride	SESSION 8 Waaier 4	COMBUSTION AND SHOCKWAVES Chair: Harald Kleine
10:30-10:55	<b>David GIRAUD</b> - An ultra-fast bright field microscope for studying behavior and effects of therapeutic ultrasound and microbubbles for cardiovascular disease (invited)	10:30-10:45	<b>Alexis BOHLIN</b> - Development of two-beam femtosecond/picosecond CARS for high-fidelity thermometry in flames
10:55-11:20	<b>Klazina KOOIMAN</b> - Microbubble-mediated drug delivery revealed at nanosecond and nanometer resolution (invited)	10:45-11:00	<b>Mattias RICHTERS</b> - Single cycle resolved PLIF imaging (36kHz) of mixture preparation and ignition in a heavy-duty PPC engine
11:20-11:35	<b>Hamid HOSANO</b> - High-speed real-time visualization of cell membrane permeabilization during microsecond pulse electric field application	11:00-11:15	<b>Zhao YU</b> - MHz framerate record laser loaded particle field using angular multiplexing volume holography ( <b>WITHDRAWN</b> )
11:35-11:50	<b>Nushin HOSANO</b> - High-speed microscopic visualization of cell membrane manipulation by ultrasound and underwater shock wave	11:15-11:30	<b>Jared FREUNDT</b> - Reflective shadowgraph technique used to image blast waves from multiple high explosive charges ( <b>WITHDRAWN</b> )
11:50-12:05	<b>Loreto OYARTE GALVEZ</b> - Jet injection by bubble confinement expansion	11:30-11:45	<b>Randall PATON</b> - Curved jetting anomaly following conical shock wave reflection
		11:45-12:00	<b>Prem Kiran PATURI</b> - Interaction of Two Counter-Propagating Laser Induced Shock Waves in air: with ns resolution ( <b>WITHDRAWN</b> )
12:00-13:30	Lunch buffet (Foyer)	12:00-13:30	ISAB Board Meeting <span style="float: right;">Carré 1333 (CR1333)</span>
SESSION 9 Waaier 2	SPAD SPECIAL SESSION I Chair: Edoardo Charbon	SESSION 10 Waaier 4	SENSORS AND CAMERAS I Chair: Seddik Benhammadi & Toni Delbruck
13:30-13:45	<b>Edoardo CHARBON</b> - Introduction to the SPAD Special Session	13:30-14:15	Keynote speaker 4: <b>Piet DE MOOR (imec Leuven)</b> High speed imager developments at imec
13:45-14:10	<b>Daniele FACCIO</b> - Advanced time-of-flight applications with SPADs: from seeing behind walls to seeing through scattering materials (invited)		
14:10-14:35	<b>Leonardo GASPARINI</b> - MILA: Imaging LiDAR at a high laser repetition rate (invited)	14:15-14:40	<b>Nico DE JONG</b> - Brandaris 3D (invited)
14:35-15:00	<b>Istvan GYONGY</b> - High speed imaging using binary, single-photon sensitive image sensors (invited)	14:40-15:05	<b>Jingzhen LI</b> - Single-shot all-optical ultrafast imaging at ten trillion frames per second with high-resolution (invited)
		15:05-15:20	<b>Vitaly TURKIN</b> - Digital high-speed rotating mirror camera for registration of rapidly moving events
15:25-15:45 Coffee break (Foyer)			
SESSION 11 Waaier 2	SPAD SPECIAL SESSION II Chair: Edoardo Charbon	SESSION 12 Waaier 4	SENSORS AND CAMERAS II Chair: Seddik Benhammadi & Toni Delbruck
15:45-16:10	<b>Davide PORTALUPPI</b> - Time-gated SPAD camera with reconfigurable macropixels for LIDAR applications (invited)	15:45-16:00	<b>Weifeng WEN</b> - Simultaneous framing and streak ultra-high-speed photoelectric camera
16:10-16:35	<b>Chao ZHANG</b> - A 252 x 144 SPAD sensor for high-speed imaging and LiDAR applications (invited)	16:00-16:15	<b>Xing WANG</b> - The development of high performance streak cameras and their applications
16:35-17:00	Panel discussion on SPAD	16:15-16:30	<b>Michiel VAN LIMBEEK</b> - Analysis and application of high-speed frustrated total-internal-reflection imaging
		16:30-16:55	<b>Stephan NICKELL</b> - Direct readout of EEPROM memory cells by passive voltage contrast multi-beam SEM imaging (invited)
17:00-18:30 POSTER session including drinks (Foyer)			

## Thursday 11 October

08:30-17:30	Registration (Ground floor, main entrance)		
09:00-10:00 Waaier 2	Plenary speaker 3: <b>David LENTINK (Stanford University)</b> - Avian Inspired Design Chair: Eleanor Stride		
10:00-10:30	Coffee break (Foyer)		
<b>SESSION 13</b> Waaier 2	<b>MATERIALS CHARACTERIZATION I</b> Chair: Alexander Rack	<b>SESSION 14</b> Waaier 4	<b>FLOW</b> Chair: Claas-Willem Visser and Jim Walton
10:30-11:15	Keynote speaker 5: <b>Daniel EAKINS (Oxford)</b> Freezing the supersonic: Revealing the mesoscale of dynamically compressed materials using real-time, synchrotron X-ray imaging	10:30-10:55	<b>Fulvio SCARANO</b> - Velocity and vorticity dynamics visualisations with high-speed tomographic PIV (invited)
11:15-11:40		10:55-11:10	<b>Bastian HAMMER</b> - Quantitative high-speed schlieren at transonic flow field around a supercritical airfoil
11:15-11:40	<b>Natalia SHEVCHENKO</b> - X-ray visualisation of melt flow effects on dendritic solidification (invited)	11:10-11:25	<b>Harald KLEINE</b> - Time-resolved polychrome Mach-Zehnder interferometry of diffracting shock waves
11:40-12:05		11:25-11:40	<b>Harald KLEINE</b> - Simultaneous time-resolved density-sensitive visualisation of high-speed flows
11:40-12:05	<b>Eiichi SATO</b> - Intense nickel-K-photon irradiation from weakly-ionized linear plasma with a zinc reflector (invited)	11:40-11:55	<b>Beric Skews</b> - Sanderson prism imaging of shock wave impact on thin elastic sheets.
12:05-12:30		11:55-12:10	<b>Prem Kiran PATURI</b> - Shadowgraphy imaging of laser induced shockwaves in transparent media ( <b>WITHDRAWN</b> )
12:05-12:30	<b>Paul KAMM</b> - X-ray tomography: beyond real-time tomography (invited)	12:10-12:25	<b>Liu SHOUXIAN</b> - Diagnosis of Richtmyer-Meshkov instability in shock tube using shearing interferometric tomography ( <b>WITHDRAWN</b> )
12:30-13:30		Lunch buffet (Foyer)	
13:30-14:15 Waaier 2	Keynote speaker 6: <b>Yoshiyuki TAGAWA (TUAT Tokyo)</b> Axisymmetric pressure field of laser-induced underwater shockwaves: non-contact high-speed measurement and analysis Chair: Paul Duineveld	13:30-14:15 Waaier 4	Keynote speaker 7: <b>Jinyang LIANG (INRS Canada)</b> Compressed Ultrafast Photography (CUP): Imaging Light-speed Events in a Snapshot Chair: T. Goji Etoh
<b>SESSION 15</b> Waaier 2	<b>BUBBLES AND DROPLETS I</b> Chair: Paul Duineveld and Shu Takagi	<b>SESSION 16</b> Waaier 4	<b>SENSORS AND PHOTONICS I</b> Chair: T. Goji Etoh and Kei-ichiro Kagawa
14:15-14:40	<b>Outi SUPPONEN</b> - High-speed imaging of high pressures produced by cavitation bubbles (invited)	14:15-14:40	<b>Andrei NOMEROTSKI</b> - Fast imager with 1.5 ns time stamping of optical photons (invited)
14:40-15:05		14:40-14:55	<b>Xuanke ZENG</b> - The study of the spatial resolution of the all-optical ultrafast imaging by optical-parametric-amplifier
15:05-15:20	<b>David ENGLER FALEIROS</b> - Flow visualization and characterisation of helium-filled soap bubble generation	14:55-15:10	<b>Zeren LI</b> - High-speed pure frequency modulation and pulse optimization based on a quantum cascade laser by all-optical modulation
15:25-15:45		15:10-15:25	<b>Ningwen LIU</b> - Multi-image ultra-high speed photoelectric photographic system and experimental technology
15:25-15:45	Coffee break (Foyer)		
<b>SESSION 17</b> Waaier 2	<b>BUBBLES AND DROPLETS II</b> Chair: Paul Duineveld and Shu Takagi	<b>SESSION 18</b> Waaier 4	<b>SENSORS AND PHOTONICS II</b> Chair: T. Goji Etoh and Kei-ichiro Kagawa
15:45-16:00	<b>Maaïke RUMP</b> - Visualization of higher order liquid meniscus modes and bubble entrapment in a piezo-electric drop-on-demand inkjet nozzle	15:45-16:00	<b>Guanghua CHEN</b> - Femtosecond multiframe photography based on parallel coherence shutters
16:00-16:15		16:00-16:15	<b>Hiroyuki USUI</b> - Study of ratio temperature radiometry using multi-spectrum camera
16:15-16:30	<b>Hironobu MATSUZAKI</b> - Behaviors of microbubble clusters trapped in focused ultrasound field	16:15-16:30	<b>Yves EMERY</b> - High speed 3D measurements by Digital Holography Microscopy (DHM®); principle and applications examples
16:30-16:45		16:30-16:45	<b>Kazuki HIRAOKA</b> - Focusing an electron-beam array with a multi-hole permanent magnet
16:45-17:00	<b>Mikhail ZAYTSEV</b> - Ultra-high-speed imaging for revealing the dynamics of giant and explosive plasmonic bubbles	16:45-17:00	<b>Xincai ZHAO</b> - A laser beam homogenization technology based on diffractive optical component and corresponding experimental research ( <b>WITHDRAWN</b> )
17:15-17:40		17:15-17:30	<b>Ping CHEN</b> - Improvement of microchannel plate for high-speed photon-counting imaging
18:00 (sharp)	Buses leave for the Banquet		
18:30-22:30	BANQUET (De Museumfabriek, Het Rozendaal 11, 7523 XG Enschede)		

## Friday 12 October

08:30-12:30	Registration (Ground floor, main entrance)		
<b>SESSION 19</b> Waaier 2	<b>BUBBLES AND DROPLETS III</b> Chair: Yoshiyuki Tagawa	<b>SESSION 20</b> Waaier 4	<b>MATERIALS CHARACTERIZATION II</b> Chair: Baoli Yao and Daniel Eakins
09:10-09:35	Nicola Carlo <b>GEURRINI</b> - Development of ultra-fast CMOS sensors for scientific applications at STFC - RAL (invited)	09:00-09:15	<b>Lloyd FLETCHER</b> - Ultra-high speed imaging of stress waves in solids for high strain rate materials testing
09:35-10:00		09:15-09:30	<b>Pascal FORQUIN</b> - Investigation of the dynamic fragmentation process in armour ceramics by using ultra-high speed imaging with synchrotron radiation
09:35-10:00	<b>Martin RICHARDSON</b> - Ultrafast studies of ablation produced by laser filamentation (invited)	09:30-09:45	<b>Juan Pablo ESCOBEDO-DIAZ</b> - Use of digital image correlation to investigate microstructural evolution in duplex stainless steel (LDX2101) under a wide range of strain-rates
		09:45-10:00	<b>Bratislav LUKIĆ</b> - Application of ultra-high speed photography in identification of the dynamic tensile response of quasi-brittle materials
10:00-10:30	Coffee break (Foyer)		
<b>SESSION 21</b> Waaier 2	<b>BUBBLES AND DROPLETS IV</b> Chair: Philippe Brunet and Yoshiyuki Tagawa	<b>SESSION 22</b> Waaier 4	<b>MATERIALS CHARACTERIZATION III</b> Chair: Baoli Yao and Daniel Eakins
10:30-10:55	<b>Paul DUINEVELD</b> - Ultra small droplet generation in inkjet printing by higher order meniscus oscillations (invited)	10:30-11:15	Keynote speaker 8: <b>Fabrice PIERRON (University of Southampton)</b> Ultra-high speed imaging to measure the high strain rate deformation of solids
10:55-11:20	<b>Nathan BLANKEN</b> - Impact of a compound drop on a solid surface (invited)		
11:20-11:55	<b>Shu TAKAGI</b> - On the microbubble generation process using thin T-junction microchannel (invited)	11:15-11:30	<b>Peng CHEN</b> - Measurement of crack growth on rock surface based on global displacement field under uniaxial compression
		11:30-11:45	<b>Tomoo OKINAKA</b> - Application of high time and spatial resolution image measurement on crack bifurcation
11:55-12:10	<b>Hannah KITTEL</b> - Phenomena of drop impact onto a liquid film of different viscosities	11:45-12:00	<b>Thanyani PANDELANI</b> - Using high speed video imaging to quantify the velocity of a striker bar
12:10-12:25	<b>Kenneth R. LANGLEY</b> - Ultra-high-speed interferometry under a drop impacting onto a nano-rough surface		
12:25-12:35 Waaier 2	Closing Ceremony - Announcement of ICHSIP-33 - Adjourn		

# Poster program

Wednesday 10 October 17:00–18:30 (Foyer)

Digital posters				
	Screen 1	Screen 2	Screen 3	Screen 4
17:00–17:15	1. <b>Myrthe BRUNING</b> - Cavitation inside an elastic medium	2. <b>Arthur CARPENTER</b> - Performance upgrade of a sub-100ps 4-frame Single Line-of-Sight (SLOS) x-ray imager at the National	3. <b>Ricardo Arturo LOPEZ DE LA CRUZ</b> - Slowing down the free fall impact of a cylinder on a shallow cornstarch suspension	4. <b>Maaïke RUMP</b> - Wetting dynamics and the leidenfrost transition for liquid drops impacting on a hot plate
17:15–17:30	5. <b>Boleslaw STASICKI</b> - A sine-modulated high-intensity UV-LED light source for pressure-sensitive paint applications using fluorescence lifetime imaging technique	6. <b>Yuki TAKAHASHI</b> - Evaluation of rebound characteristics for running-specific prostheses based on their dynamic behavior obtained by an impact test	7. <b>Clement TROSSEILLE</b> - Understanding the imaging performance of the dilation aided single-line-of-sight X-ray camera for the national ignition facility	8. <b>Kinko TSUJI</b> - High-speed observations of droplet fragmentation and bubble collapse
17:30–17:45	9. <b>Benkang WANG</b> - 3D deformation monitor with a distributed high-speed videogrammetry system based on shaking table experiment	10. <b>Xing WANG</b> - High resolution electron bombarded complementary metal oxide semiconductor sensor for ultraviolet detection	11. <b>Fumiaki YANO</b> - Observation of fracture behavior and strain distribution on impact test of plastic material	14. <b>Bahareh HOSSEINI</b> - High-speed highly-magnified visualization underwater shock waves induced by electric discharges for medical applications
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Traditional posters	
Board 1	12. <b>Yasuhiro AWATSUJI</b> - Extending recordable time in light-in-flight recording by holography
Board 2	13. <b>Marina DVORNICHENKO</b> - Record and reconstruction of digital holograms of dispersed micro particles
Board 3	15. <b>Keiichiro KAGAWA</b> - Observation of laser-induced plasma in laser processing with a 200 Mfps multi-aperture ultra-high-speed CMOS image sensor
Board 4	16. <b>Yong-an LIU</b> - Stability of CsI photocathode under FUV irradiation and the influence of humidity on the quantum efficiency
Board 5	17. <b>Alan MCKIERNAN</b> - Inhaler spray investigation using high-speed phase-contrast X-ray and schlieren imaging
Board 6	18. <b>Alexander RACK</b> - The ID19 beamline: a versatile station for ultra-high speed synchrotron-based hard X-ray imaging
	19. <b>Chengshuai YANG</b> - Methods to improve image's quality of compressed ultrafast photography <b>(WITHDRAWN)</b>
	20. <b>Xincai ZHAO</b> - Optical system for an ultra-high-speed framing camera without ghost images <b>(WITHDRAWN)</b>