Monday, 9 November

8:15am **Technical Support (if needed)**
Welcome Desk

8:55am **Opening Speech**
Gaudi Room

9am **Plenary Session**
Gaudi Room
Chaired by: Prof. Frank Vollmer

9am **Topological plasmonics: Watching ultrafast vector movies of plasmonic skyrmions on the nanoscale**
» Prof. Harald Giessen

9:45am **Making the Tiniest Machines**
» Prof. David Leigh

10:30am **Break & Networking**
Networking & Break Area

10:50am **Single-molecule Raman and SERS I**
Gaudi Room
Chaired by: Prof. Harald Giessen

10:50am **Single-molecule SERS measurements enabled by DNA origami nanostructures**
» Prof. Ilko Bald, Dr. Kosti Tapio, Mr. Amr Mostafa, Mr. Yuya Kanehira, Dr. Anushree Dutta

11:05am **Monitoring and in-situ imaging of extracellular metabolites by surface-enhanced Raman scattering**
» Mr. Javier Plou, Mr. Mathias Charconnet, Dr. Isabel García, Prof. Arkaitz Carracedo, Prof. Luis Liz-Marzán

11:20am **Widefield single-shot photothermal holography**
» Dr. matz liebel, Dr. Franco Camargo, Mr. Unai Ortiz-Orruño, Prof. Niek van Hulst, Prof. Giulio Cerullo

11:35am **Using Photo-induced enhanced Raman spectroscopy (PIERS) for studying induced surface oxygen vacancy defects and trace molecule detection**
» Mr. Daniel Glass, Prof. Emiliano Cortés, Dr. Sultan Ben-Jaber, Dr. Raul Quesada-Cabrera, Dr. William Peveler, Prof. Christopher Blackman, Dr. Christopher Howle, Prof. Ivan Parkin, Prof. Stefan Maier

11:50am **Single-Molecule Detection of DNA and Proteins in a Plasmonic Nanopore with Sub-molecular Resolution by Surface Enhanced Raman Spectroscopy**
» Dr. Jian-An Huang, Dr. Yingqi Zhao, Dr. Aliaksandr Hubarevich, Dr. Francesco De Angelis

12:05pm **Water Compatible Molecular Spectroscopy Using Self Formed Nanojunctions**
» Dr. Prajith Karadan, Mr. Amir Ziv, Dr. Shira Yochelis, Prof. Yossi Paltiel, Prof. Roie Yerushalmi

10:50am **DNA nanomachines, nanotechnology & sensors I**
Sagrada Room
Chaired by: Prof. Ariel Kaplan

10:50am **Single-molecule biosensing enhanced by DNA nanotech**
» Prof. Philip Tinnefeld

11:20am **Directing Single-Molecule Emission with DNA Origami-Assembled Optical Antennas**
» Dr. Mauricio Pilo-Pais, Mrs. Kristina Hübner, Dr. Florian Selbach, Prof. Tim Liedl, Prof. Philip Tinnefeld, Prof. Fernando Stefani, Prof. Guillermo Acuna

11:35am **Clear Discrimination of Single-Molecule of a Single-Stranded DNA Homopolymers and Hetero-Homopolymers Through a New Mutant of MspA**
» Mrs. Huma Bhatti, Dr. Quanjun Liu

Continued from **Monday, 9 November**

11:50am **DNA Origami Nanoantennas for Fluorescence based Biosensing**
» Dr. Florian Selbach, Dr. Viktorija Glembockyte, Dr. Kateryna Trofymchuk, Ms. Cindy Close, Ms. Martina Pfeiffer, Mr. Lennart Grabenhorst, Dr. Florian Steiner, Prof. Philip Tinnefeld

12:05pm **G-quadruplex-assisted Hybridization Chain Reaction**
» Dr. Osman Doluca

10:50am **Single-molecule biophysics I**
Ramblas Room
Chaired by: Prof. Claudia Veigel

10:50am **Prospects for electrostatic detection of actin filaments and microtubules in on-chip in vitro motility assays**
» Ms. Marta Sanchez Miranda, Dr. Roman Lyttleton, Prof. Heiner Linke, Prof. Adam Micolich

11:05am **The nonlinear optical response of water as label-free probe of nanoparticles/cell membranes interactions: from qualitative understandings to high sensitive nano-bio-sensor platforms**
» Dr. Francesca Cecchet

11:20am **Analysis of Signal Generation in Photothermal-Induced Resonance Spectroscopy: Application to Sensitive and Selective Imaging of the Components of the Cellular Membrane.**
» Dr. Luca Quaroni

11:35am **Nanoscale multi-colour fluorescence cross-correlation spectroscopy on living cell membranes with plasmonic antennas**
» Ms. Maria Sanz-Paz, Dr. Thomas van Zanten, Dr. Mathieu Mivelle, Dr. Carlo Manzo, Prof. Maria Garcia-Parajo

11:50am **Nanophotonic tools to resolve nanoscale dynamics on biological membranes**
» Prof. Maria Garcia-Parajo

12:20pm **Lunch & Networking**
Networking & Break Area

1:30pm **Flash Session 1A**
Gaudi Room
Chaired by: Prof. Niek van Hulst

Three-dimensional paper-based microfluidic analytical devices (3D-µPADs) for detection of multiple biomarkers
» Mr. Chanyong Park, Mr. SeungHo Baek, Prof. Sungsu Park

Trapping and actuation of single dielectric nanoparticles using dielectrophoresis
» Dr. Sergii Pud, Mr. Jacco Ton, Mr. Eliot Schwander, Prof. Michel Orrit

ODMR effect in spin centers of silicon carbide as sensors of magnetic fields, temperature, and mechanical stresses
» Dr. Andrey Anisimov, Mr. Ilya Breev, Prof. Pavel Baranov

Peptides as receptors for metal ions in potentiometric chemical sensors
» Ms. Olena Synhaivska, Mr. Yves Mermoud, Dr. Israel Alshanski, Dr. Mattan Hurevich, Prof. Shlomo Yitzchaik, Dr. Mathias Wipf, Prof. Michel Calame

Single-molecule fluorescence system for determination of biogenic amines in biological samples
» Ms. Anastasia Mikhailova, Ms. Maria Makedonskaya, Prof. Tatiana Shekhovtsova, Prof. Irina Veselova

Real-time study of biomolecular coatings using one-dimensional photonic crystal based biosensors
» Dr. Alberto Sinibaldi, Dr. Vanessa Montano-Machado, Dr. Norbert Danz, Dr. Peter Munzert, Dr. Francesco Chiavaioli, Prof. Diego Mantovani, Prof. Francesco Michelotti

1:30pm **Flash Session 2A**
Sagrada Room
Chaired by: Prof. Frank Vollmer

Continued from **Monday, 9 November**

Target-triggered exponential signal amplification reaction for RNA detection
» Ms. Seoyoung Lee, Prof. Hyun Gyu Park

Universal miRNA detection based on target indcued toehold-mediated strand displacement reactions
» Ms. Yeonkyung Park, Prof. Hyun Gyu Park

A novel H-shape adaptor-mediated isothermal exponential amplification reaction (HS-EXPAR) to identify target nucleic acid
» Ms. Hansol Kim, Prof. Hyun Gyu Park

Ultrasensitive insertion mutation detection by CRISPR –utilizing EXPAR in one step RT-PCR
» Ms. Jayeon Song, Prof. Hyun Gyu Park

Multiplexed real-time detection of foodborne pathogens using lab-on-a-disc platform
» Mr. Soohyun Kim, Mr. RaKyeom Kim, Prof. Nae Yoon Lee, Dr. Min Hwan Kim, Prof. Hyun Gyu Park

Real-time sensing of neurotransmitters by a functionalized nanopore embedded in single live cell
» Mr. Ming Zhang, Ms. Xialin Zhang, Ms. Linqin Dou, Prof. Jia Geng

1:30pm **Flash Session 3A**
Ramblas Room
Chaired by: Dr. Hsin-Yu Wu

Modified chemi- and biorecognizing polymeric materials as the basis of optical sensor elements for the determination of diagnostic markers of oxidative stress and neurodegenerative diseases
» Prof. Irina Veselova, Ms. Anastasia Mikhailova, Ms. Maria Makedonskaya, Dr. Olga Eremina, Ms. Alisa Kuropteva, Prof. Tatiana Shekhovtsova, Dr. Olesya Kapitanova

Deciphering neuronal mechanotransduction pathways through membrane tether extrusion
» Dr. Frederic Català Castro, Ms. Neus Sanfeliu, Mr. Nawaphat Malaiwong, Prof. Michael Krieg

ForSDAT: A Fully Automated Data Analysis Toolkit for SMFS Measurements
» Mr. Tal Duanis-Assaf, Prof. Meital Reches

Label-free detection of amyloid fibrils based on their intrinsic fluorescence properties
» Mrs. Manuela Grelich-Mucha, Dr. Joanna Olesiak-Banska

Germanium nanospheres as high precision optical tweezers probes
» Ms. Swathi Sudhakar, Prof. Erik Schaeffer

2pm **Flash Session 1B**
Gaudi Room
Chaired by: Prof. Niek van Hulst

Single-molecule laser
» Dr. deshui yu, Dr. Samir Kashani, Prof. Frank Vollmer

A light source for quantum-enhanced single molecule detection schemes using whispering gallery modes
» Mr. Callum Jones, Dr. Jolly Xavier, Prof. Frank Vollmer

Planar scanning probes for nanogap cavity microscopy
» Mr. Paul Weinbrenner, Mr. Stefan Ernst, Mr. Dominik Irber, Mr. Georg Braunbeck, Dr. Friedemann Reinhard

Carbon Ions Irradiation-Induced Changes in Optical Transparency and Electrical Conductivity of Nickel Nanowires Mesh
» Dr. Shehla Honey, Mr. Jamil Asim, Prof. Shahzad Naseem, Prof. Ishaq Ahmad, Prof. Maaza Malek

Continued from **Monday, 9 November**

2pm **Flash Session 2B**
Sagrada Room
Chaired by: Prof. Frank Vollmer

Microscopy of photoactive and photoconvertible fluorescent proteins
» Dr. Justyna Grzelak, Ms. Martyna Domagalska, Mr. Artur Ziółkowski, Ms. Karolina Sulowska, Dr. Joanna Niedziolka-Jonsson, Prof. Sebastian Maćkowski

Towards Single-Molecule Spectroscopy with Nanoelectromechanical Photothermal Sensing at Room Temperature
» Ms. Miao-Hsuan Chien, Dr. Mario Brameshuber, Mr. Joschka Hellmeier, Dr. Gerhard Schütz, Dr. Silvan Schmid

Bloch surface waves in the mid-infrared for molecular sensing
» Mrs. Raffaella Polito, Dr. Agostino Occhicone, Dr. Marialilia Pea, Dr. Valeria Giliberti, Dr. Alberto Sinibaldi, Dr. Francesco Mattioli, Dr. Sara Cibella, Dr. Andrea Notargiacomo, Prof. Monica De Seta, Prof. Luciana Di Gaspare, Prof. Alessandro Nucara, Prof. Francesco Michelotti, Prof. Michele Ortolani, Dr. Leonetta Baldassarre

Towards routine fluorescence-free imaging of biomimetic cell membranes
» Ms. Hanna Orlikowska, Dr. Lukasz Piatkowski

A single benzene fluorescent probe for efficient formaldehyde sensing in living cells using glutathione as an amplifier
» Mr. Anal Jana, Dr. Animesh Samanta

Level-crossing induced spin phenomena in SiC: investigating the dependence of photoluminescence intensity on magnetic field strength
» Dr. Denis Sosnovsky, Dr. Konstantin Ivanov

2pm **Flash Session 3B**
Ramblas Room
Chaired by: Dr. Hsin-Yu Wu

Sensing hydration with biomimetic cell membrane
» Dr. Lukasz Piatkowski, Ms. Madhurima Chattopadhyay, Ms. Emilia Krok, Ms. Hanna Orlikowska

Study of fluid dynamics at the boundary wall of a microchannel by Bloch surface waves
» Dr. Agostino Occhicone, Dr. Alberto Sinibaldi, Dr. Frank Sonntag, Dr. Norbert Danz, Dr. Peter Munzert, Prof. Francesco Michelotti

Upconversion nanoparticles for NIR-induced photopolymerization in highly turbid medium
» Mr. Kirill V. Khaydukov, Ms. Polina A. Demina, Mr. Alexander G. Savelyev, Mrs. Alla N. Generalova, Mrs. Vasilina V. Rocheva, Mr. Evgeny V. Khaydukov

Upconversion nanoparticles as imaging nanosystems for nanodrugs distribution in vessels
» Ms. Polina A. Demina, Ms. Natalia V. Sholina, Dr. Denis N. Karimov, Mrs. Natalya A. Arkharova, Dr. Dmitry A. Khochenkov, Dr. Roman Akasov, Dr. Andrey V. Nechaev, Mrs. Alla N. Generalova, Mr. Evgeny V. Khaydukov

Gold nanoclusters as a supramolecular probes for amyloid fibrils detection
» Ms. Anna Pniakowska, Mr. Patryk Obstarczyk, Dr. Marcin Grzelczak, Dr. Joanna Olesiak-Bańska

2:30pm **Break & Networking**
Networking & Break Area

2:40pm **Single-molecule Raman and SERS II**
Gaudi Room
Chaired by: Prof. Ilko Bald

Continued from **Monday, 9 November**

2:40pm **Single nanoparticle and single-molecule Raman excitation spectroscopy of porphycene derivatives**
» Dr. Sylwester Gawinkowski

2:55pm **Statistical analysis of correlative SERS and TEM imaging and evaluation of SERS tags performance**
» Mrs. Elisa Lenzi, Dr. Lucio Litti, Dr. Dorleta Jimenez De Aberasturi, Dr. Malou Henriksen, Prof. Luis Liz-Marzán

3:10pm **Atto-molar SERS Detection Using Broadband Trapping in Width-Graded Plasmonic Gratings**
» Mr. Moein Shayegannia, Ms. Katelyn Dixon, Prof. Nazir Kherani

3:25pm **Single molecule devices addressed with atomically confined photons**
» Prof. Ara Apkarian

2:40pm **DNA nanomachines, nanotechnology & sensors II**
Sagrada Room
Chaired by: Prof. Philip Tinnefeld

2:40pm **Optical mapping of single DNA molecules in real time**
» Mrs. Franziska Esmek, Dr. Manja Czech-Sioli, Dr. Thomas Guenther, Prof. Adam Grundhoff, Prof. Nicole Fischer, Dr. Irene Fernandez-Cuesta

2:55pm **Bistable oligomeric systems might become a new platform for the design of nanosensors and molecular machines**
» Prof. Vladik Avetisov

3:10pm **Dissecting the mechanisms of transcription factor binding to DNA: a single molecule study**
» Prof. Ariel Kaplan

3:25pm **Dynamic, single-molecule measurements of intrinsic and induced nucleic acid bending using DNA nanostructures and video microscopy**
» Ms. Xinyue Cai, Prof. Deborah Fygenson

3:40pm **Controlling the dynamic structure of viral DNA for efficient control of origami assembly**
» Dr. Joseph Robertson, Dr. Jacob Majikes, Dr. Michael Zwolak, Dr. J. Alexander Liddle

2:40pm **Single-molecule forces and force spectroscopies I**
Ramblas Room

2:40pm **Folding Funnel of Protein Barnase Measured with Calorimetric Force Spectroscopy**
» Prof. Felix Ritort, Ms. Annamaria Zaltron, Mr. Sebastian Davis, Mr. M. Rico-Pasto, Ms. Silvia Frutos

3:10pm **Electrophoresis with label-free single protein detection sensitivity**
» Mr. Mahyar Dahmardeh, Mr. Houman Mirzaalian, Mr. Reza Gholami, Prof. Vahid Sandoghdar

3:25pm **Nonlinear nanomechanical mass spectrometry at the single-nanoparticle level using trajectory-locked loops**
» Mr. Mert Yuksel, Ms. Ezgi Orhan, Dr. Cenk Yanik, Mr. Atakan Ari, Prof. Alper Demir, Prof. Selim Hanay

3:40pm **From an atomic-resolution mill to a new engineering solution for the climate crisis - a call to action across 17 orders of magnitude in length**
» Dr. Ye Tao

3:55pm **Single Molecule and Single Cell Force Spectroscopy method using magnetic and acoustofludic actuators.**
» Mr. Christopher Markwell, Ms. Luying Feng, Dr. Ran Tao, Dr. Steven O'Reilly, Prof. Richard Fu, Dr. Hamdi Torun

4:10pm **Break & Networking**
Networking & Break Area

Continued from **Monday, 9 November**

4:30pm **Plenary Session**
Gaudi Room
Chaired by: Prof. Erik Schaeffer

4:30pm **Molecular motors – from single myosin molecules to functional ensembles**
» Prof. Claudia Veigel

5:15pm **Co-temporal Force and Fluorescence Measurements Reveal a Ribosome Gear-shift Mechanism of Translation Regulation by mRNA Secondary Structures**
» Prof. Carlos Bustamante

6pm **Networking**
Networking & Break Area

Tuesday, 10 November

8:40am **Technical Support (if needed)**
Welcome Desk

9am **Plenary Session**
Gaudi Room
Chaired by: Prof. Niek van Hulst

9am **Proteins as mechano-chemical switches**
» Dr. Viola Vogel

9:45am **Quantum Control of Nanoscale Quantum Sensors**
» Prof. Martin Plenio

10:30am **Break & Networking**
Networking & Break Area

10:50am **Molecular electronics**
Gaudi Room
Chaired by: Prof. Martin Plenio

10:50am **Challenges and Opportunities in Single-Molecule Electronics**
» Prof. Xuefeng Guo

11:20am **Spin driven enhancement of single molecule thermoelectric efficiency**
» Dr. Sara Sangtarash, Dr. Hatef Sadeghi

11:35am **Atomistic resolved trigger signals of amino acids for peptide sequencing by tunneling current analysis**
» Mr. Tommaso Civitarese, Prof. Giuseppe Zollo

11:50am **Strategies for the fabrication of robust molecular junctions and top-contact electrodes in molecular electronic devices**
» Dr. lucia herrer, Prof. Pilar Cea, Dr. Santiago Martín, Prof. Paul Low, Dr. José M. De Teresa, Prof. José Luis Serrano, Prof. Richard J. Nichols, Prof. Colin Lambert

12:05pm **Mechanoresistive molecular junctions: contacts, coordination and through-space interactions**
» Dr. Andrea Vezzoli, Ms. Chuanli Wu, Mr. Demetris Bates, Dr. Nicolo' Ferri, Dr. Kun Wang, Dr. Sara Sangtarash, Dr. Ali K. Ismael, Prof. Bingqian Xu, Dr. Hatef Sadeghi, Dr. Craig Robertson, Prof. Colin Lambert, Prof. Simon Higgins, Prof. Richard Nichols

10:50am **Plasmonic sensors I**
Sagrada Room
Chaired by: Prof. Alfred J. Meixner

10:50am **SPP propagation in a silver nanowire waveguide for biosensing**
» Dr. Dorota Byczyńska, Mr. Michał Ćwik, Dr. Ewa Rożniecka, Ms. Karolina Sulowska, Prof. Sebastian Maćkowski, Dr. Joanna Niedziolka-Jonsson

Continued from **Tuesday, 10 November**

11:05am **Blinking of Intrinsic Light Emission from Plasmonic Nanojunctions**
» Mr. Philippe Roelli, Dr. Wen Chen, Mr. Aqeel Ahmed, Prof. Tobias Kippenberg, Prof. Christophe Galland

11:20am **Plasmonic Metamaterials for High-Performance Sensing**
» Prof. Pan Wang

11:35am **Photochemically printed plasmonically active metallic nanostructures**
» Dr. Marcin Szalkowski, Mr. Kamil Wiwatowski, Ms. Karolina Sulowska, Prof. Dawid Piątkowski, Prof. Sebastian Maćkowski

11:50am **Single-molecule plasmon sensing guided by super-resolution microscopy**
» Prof. Peter Zijlstra, Mr. Matej Horacek, Ms. Rachel Armstrong

10:50am **Single-molecule biophysics II**
Ramblas Room
Chaired by: Dr. Viola Vogel

10:50am **Dissecting kinesin's gait: Ultraresolution optical trapping using germanium nanospheres**
» Prof. Erik Schaeffer, Mrs. Swathi Sudhakar

11:20am **Thermophoretic Trap for Single Amyloid Fibril and Protein Aggregation Studies**
» Mr. Martin Fränzl, Mr. Tobias Thalheim, Prof. Daniel Huster, Prof. Michael Mertig, Prof. Frank Cichos

11:35am **Mechanics of the Neural Cell Adhesion Molecule from a single-molecule perspective**
» Dr. Jessica Valle Orero

11:50am **Versatile Tools Towards Real-time, Single-molecule and Single-Cell Biology**
» Mr. Maurice Hendricks, Mr. Jordi Cabanas-Danes

12:20pm **Lunch & Networking**
Networking & Break Area

1:30pm **Quantum sensors**
Gaudi Room
Chaired by: Prof. Martin Plenio

1:30pm **Kondo-like State Indicates Spin Preservation In Pi-Radical On Au(111)**
» Mr. Radovan Vraník, Dr. Vitalii Stetsovych, Dr. Simon Feigl, Prof. Stefan Müllegger

1:45pm **Single molecule spectroscopy of spin correlated radical pairs**
» Mr. Noboru Ikeya, Dr. Konstantin Ivanov, Prof. Jonathan Woodward

2pm **Molecular platform for frequency upconversion at the single-photon level**
» Mr. Philippe Roelli, Dr. Diego-Martin Cano, Prof. Tobias Kippenberg, Prof. Christophe Galland

2:15pm **Superflares of Photoluminescence from a Microdiamond with GeV Color Centers: a New Possibility for Quantum Sensing?**
» Ms. Natalia Lozing, Dr. Maxim Gladush, Dr. Ivan Eremchev, Dr. Eugeniy Ekimov, Prof. Andrey Naumov

2:30pm **Probing chiral-induced magnetization and 2D magnets using a diamond magnetic microscope**
» Prof. Nir Bar-Gill, Mr. Idan Meirzada, Ms. Galya Haim, Dr. Sourabh Singh, Prof. Hadar Steinberg, Mr. Nir Sukenik, Dr. Shira Yochelis, Prof. Yossi Paltiel

2:45pm **Biocompatible Diamond Surface Functionalization for Single-Molecule Quantum Sensing**
» Dr. Mouzhe Xie, Prof. Peter Maurer

1:30pm **Plasmonic sensors II**
Sagrada Room
Chaired by: Prof. Peter Zijlstra

Continued from **Tuesday, 10 November**

1:30pm **Fluorescent Dye Nano-Assemblies based on Gold Nanorods for Effective Emission Enhancement**
» Dr. Pedro M. R. Paulo, Mr. David Botequim, Ms. Inês I. R. Silva, Ms. Sofia G. Serra, Prof. Eduardo P. Melo, Prof. Duarte M. F. Prazeres, Prof. Sílvia M. B. Costa

1:45pm **Controlling the Optical Properties of Molecules by the Vacuum Electromagnetic Fields of a Microcavity**
» Mr. Wassie Mersha Takele, Dr. Frank Wackenhut, Dr. Lukasz Piatkowski, Prof. Alfred J. Meixner, Prof. Jacek Waluk

2pm **Plasmonic gold-nanoparticle clusters: Plasmon-coupling effects for Parkinson biomarker detection**
» Prof. kuan-Jiuh Lin

2:15pm **Novel plasmonic nanocavities for single-particle manipulation and detection**
» Dr. Alemayehu Nana Koya, Mr. Joao Cunha, Dr. Tianlong Guo, Dr. Andrea Toma, Dr. Denis Garoli, Prof. Tao Wang, Prof. Saulius Juodkazis, Prof. Dan Cojoc, Prof. Remo Proietti Zaccaria

2:30pm **Probing Thiol-Disulfide Redox Cycling at the Single-Molecule Level**
» Mr. Serge Vincent, Mr. Sivaraman Subramanian, Prof. Frank Vollmer

2:45pm **Theoretical analysis of single-molecule experimental data**
» Dr. Jesús Rubio-Jiménez, Prof. Janet Anders

1:30pm **Single-molecule forces and force spectroscopies II**
Ramblas Room
Chaired by: Prof. Erik Schaeffer

1:30pm **High-throughput, High-resolution Force Spectroscopy: From the Centrifuge Force Microscope to Programmable DNA Nanoswitches**
» Prof. Wesley Wong

2pm **Electrokinetic trapping of non-fluorescent nanoparticles in water**
» Mr. Yera Ussembayev, Mr. Vincent De Clercq, Prof. Kristiaan Neyts, Prof. Filip Strubbe

2:15pm **Direct detection of molecular intermediates from first-passage times**
» Dr. Alice Thorneywork, Dr. Jannes Gladrow, Dr. Yujia Qing, Mr. Marc Rico Pasto, Prof. Felix Ritort, Prof. Hagan Bayley, Prof. Anatoly Kolomeisky, Prof. Ulrich Keyser

2:30pm **Intramolecular Imaging Using Intermolecular Forces**
» Prof. Ozgur Sahin

3pm **Break & Networking**
Networking & Break Area

3:20pm **Flash Session 1A**
Gaudi Room
Chaired by: Prof. Niek van Hulst

Development of a smell biosensor system for early detection of plant diseases
» Dr. Katalin Zboray, Ms. Krisztina Pesti, Mr. Adam Viktor Toth, Ms. Zainab Quddoos, Mr. Matyas Csaba Foldi, Ms. Zsuzsanna Ambrozy, Mr. Kamiran Aron Hamow, Dr. Arpad Mike, Dr. Peter Lukacs

Breakdown electrochemical etching method for processing high aspect ratio nanopores in the range 10 nm
» Dr. Hithesh Kumar Gatty, Dr. Xuan Chung Nguyen, Ms. Xi Lu, Dr. Miao Zhang, Prof. Jan Linnros

Application of pore-forming toxin in single-molecule sensors
» Dr. chan cao, Prof. Matteo Dal Peraro

Combining Ultrasensitive Single-Molecule Sensing and Super-Resolution Imaging
» Mr. Narima Eerging, Dr. Hsin-Yu Wu, Mr. Sivaraman Subramanian, Mr. Serge Vincent, Prof. Frank Vollmer

Continued from **Tuesday, 10 November**

Making Solid-State Nanopore Research Accessible and Affordable
» Dr. Kyle Briggs, Mr. Matthew Waugh, Mr. Mathieu Gibeault, Prof. Vincent Tabard-Cossa

Induced chiral plasmon as a new amyloid sensing method
» Mr. Maciej Lipok, Mr. Patryk Obstarczyk, Dr. Joanna Olesiak-Bańska

3:20pm **Flash Session 2A**
Sagrada Room
Chaired by: Prof. Frank Vollmer

Developing a portable SERS chip for point-of-care analysis of virus-specific nucleic acid
» Mr. Armando Dias, Ms. Lei Wu, Mrs. Lorena Dieguez

The rising ratchet: towards particle separation with nanometer accuracy
» Mr. Philippe Nicollier, Dr. Christian Schwemmer, Dr. Francesca Ruggeri, Dr. Armin Knoll

Probing of amyloid structure – microscopy and nanoparticles
» Mr. Patryk Obstarczyk, Mr. Maciej Lipok, Dr. Andrzej Żak, Dr. Joanna Olesiak-Bańska

Computer Controlled Fast and Processive Bipedal Motor that Travels Long Distances
» Mr. Samrat Basak, Mr. Ofir Perel, Mr. Breverous Sheheade, Mr. Haggai Shapira, Ms. Meitar Uralrvitch, Dr. Maria Popov, Prof. Eyal Nir

Anapole modes in oxygen-vacancy-rich TiO2 nano-resonators: tuning the absorption for photocatalysis in the visible
» Mr. Ludwig Hüttenhofer, Mr. Felix Eckmann, Dr. Alberto Lauri, Dr. Javier Cambiasso, Dr. Evangelina Pensa, Dr. Yi Li, Prof. Emiliano Cortes, Prof. Ian Sharp, Prof. Stefan Maier

Optimization of distance between the SERS label and the silver surface for effective DNA detection by enhanced Raman spectroscopy.
» Mr. Eduard Pisarev, Dr. Olesya Kapitanova, Dr. Olga Eremina, Prof. Timofey Zatsepin, Prof. Irina Veselova, Prof. Maria Zvereva

3:50pm **Flash Session 1B**
Gaudi Room
Chaired by: Prof. Niek van Hulst

Protein folding/unfolding phenomenon is originated by synchronization/desynchronization of oscillatory phases of the van der Waals dispersion interaction. A hypothesis.
» Dr. German Mino-Galaz

Single-molecule enzymology: characterising the dynamics and function of 3-phosphoglycerate kinase (3PGK) from Geobacillus stearothermophilus in real-time
» Ms. simona frustaci, Mr. Sivaraman Subramanian, Prof. Jennifer A Littlechild, Prof. Frank Vollmer

Measuring femto-Newton forces in enzyme turnover and its potential in highly specific pathogen diagnostics
» Dr. Daniel Mitchell, Ms. simona frustaci, Prof. Frank Vollmer, Prof. Neil Gow, Prof. Jennifer A Littlechild

Optical Voltage Sensing on Biological Membranes
» Mrs. Sarah Ochmann, Mrs. Clara Schulz, Mrs. Ece Büber, Dr. Henri Franquelim, Prof. Ulrich Keyser, Prof. Philip Tinnefeld

DNA nunchucks: nano-instrumentation for single-molecule measurement of stiffness and bending
» Ms. Xinyue Cai, Prof. Deborah Fygenson

Canonical lysine-48-linked polyubiquitin signals for proteasomal degradation attenuate the conformational dynamics of the 26S proteasome
» Dr. Zaw Htet, Dr. Erik Jonsson, Dr. Ken Dong, Dr. Eric Greene, Dr. Andreas Martin

Continued from **Tuesday, 10 November**

3:50pm **Flash Session 2B**
Sagrada Room
Chaired by: Prof. Frank Vollmer

Controlling surface-enhanced charge screening to realize single-molecule sensing with silicon FET sensors
» Mr. Sybren Santermans, Dr. Koen Martens, Dr. Geert Hellings, Dr. Willem Van Roy, Prof. Marc Heyns

Increasing the limit of detection of localized plasmon resonance sensors by use of anisotropic array of metallic nanoparticles
» Prof. Yves Borensztein, Dr. William L Watkins

Studies on adsorption of thiolated mononucleotides and single stranded DNA on gold surface by SERS
» Ms. Edyta Pyrak, Dr. Aleksandra Jaworska, Prof. Andrzej Kudelski

On-chip protein separation with single-molecule resolution
» Mr. Shilo Ohayon, Dr. Adam Zrehen, Dr. Diana Huttner, Prof. Amit Meller

Gold nanocluster sensor signals of dopamine with time-dependent density functional theory
» Ms. Ekaterina Zossimova, Dr. Khuong Ong, Dr. Jolly Xavier, Prof. Frank Vollmer

4:10pm **Break & Networking**
Networking & Break Area

4:30pm **Plenary Session**
Gaudi Room
Chaired by: Prof. Niek van Hulst

4:30pm **Detecting molecular properties with a quantum sensor**
» Prof. Joerg Wrachtrup

5:15pm **TBD**
» Prof. Luke Lee

6pm **Networking**
Networking & Break Area

Wednesday, 11 November

8:40am **Technical Support (if needed)**
Welcome Desk

9am **Plenary Session**
Gaudi Room
Chaired by: Prof. Niek van Hulst

9am **Nanoaperture Optical Tweezers for Single Biomolecule Studies**
» Prof. Xiaoliang Sunney Xie

9:45am **On-surface reactions and single-molecule charge transitions controlled by atom manipulation**
» Dr. Leo Gross

10:30am **Break & Networking**
Networking & Break Area

10:50am **Nanopore sensors I**
Gaudi Room
Chaired by: Prof. Matteo Dal Peraro

10:50am **Ultra-sensitive mRNA and protein biomarkers quantification using solid-state nanopores**
» Prof. Amit Meller

Continued from **Wednesday, 11 November**

11:20am **Controllable Subnanometer Channel MscS for Simultaneous Discrimination of dNTP Barcode Probes**
» Prof. Jia Geng, Mr. Changjian Zhao

11:35am **Redox-active nanopores for protein sensing**
» Mr. Yves Mermoud, Dr. Peter Nirmalarj, Prof. Michel Calame

11:50am **A high aspect ratio and long single nanopore development on an SOI for slow DNA translocation**
» Dr. Hithesh Kumar Gatty, Dr. Xuan Chung Nguyen, Dr. Miao Zhang, Prof. Ilya Sytjugov, Prof. Jan Linnros

12:05pm **Single Gold Nano Particle Detection using Nanopore-Integrated Microwave Sensor**
» Mr. Arda Secme, Mrs. H. Dilara Uslu, Mr. Berk Kucukoglu, Dr. Hadi Sedaghat Pisheh, Dr. Mehmet Selim Hanay

10:50am Microscopy, single-molecule scattering & localisation I

Sagrada Room

10:50am **Label-Free Biosensing by Ultrasensitive Supercritical Angle Refractometry**
» Dr. Lucien Weiss, Mr. Boris Ferdman, Dr. Onit Alalouf, Prof. Yoav Shechtman

11:05am **Stereo Darkfield Stereoscopy : a linear and superresolutive 3D tracking method for diluted particles.**
» Mr. Martin Rieu, Dr. Thibault Vieille, Dr. Gael Radou, Prof. Jean Francois Allemand, Prof. Vincent Croquette

11:20am **Ultra-Sensitive High-Dynamic Range Label Free Platform for Bioparticle Detection**
» Mr. Unai Ortiz-Orruño, Dr. matz liebel, Prof. Niek van Hulst

11:35am **Effective linewidth shifts in single-molecule detection using optical whispering gallery modes**
» Mr. Sivaraman Subramanian, Mr. Serge Vincent, Prof. Frank Vollmer

11:50am **Nanofluidic scattering microscopy for the label-free imaging of single molecules in free motion**
» Dr. Barbora Spackova, Mr. Johan Tenghamn, Dr. Joachim Fritzsche, Dr. Christoph Langhammer

12:05pm **High-throughput multicolor 3D localization in live cells by depth-encoding imaging flow cytometry**
» Dr. Lucien Weiss, Mrs. Yael Shalev Ezra, Dr. Sarah Goldberg, Mr. Omer Adir, Prof. Avi Schroeder, Dr. Onit Alalouf, Prof. Yoav Shechtman

10:50am Biosensing, on-chip

Ramblas Room

Chaired by: Prof. Ashley Cadby

10:50am **Confocal Fluorescence Spectroscopy as a rapid HIV-1 capsid binder screening platform**
» Mr. Derrick Lau, Dr. James Walsh, Dr. Claire Dickson, Dr. Andrew Tuckwell, Dr. Jeffrey Stear, Dr. Dominic Hunter, Dr. Vaibhav Shah, Dr. Stuart Turville, Dr. Yann Gambin, Dr. Emma Sierecki, Dr. David Jacques, Dr. Till Böcking

11:05am **3D-Printing Technology With (0-3) Piezocomposite Materials For Low-Cost Sensing Applications**
» Dr. Rolan Mansour, Dr. Andrew Reid, Mr. Oluwaseun Omoniyi, Ms. Lin Liang, Dr. Richard O'Leary, Prof. James Windmill

11:20am **Assembling Natural Puzzle Pieces to Build Efficient Cell Biosensors**
» Dr. Samar Damiati

11:35am **Paper-origami device enabling low-cost and rapid microbial analysis**
» Dr. Zhugen Yang

11:50am **Sub-wavelength on-chip optical sources towards multiplex single-molecule detection**
» Dr. Francesco Tantussi, Dr. Sara Perotto, Mr. Claudio Biagini, Dr. Francesco De Angelis

Continued from **Wednesday, 11 November**

12:05pm **Molecular-based coordination polymer as reversible and precise acetonitrile electro-optical readout**
» Dr. Jose Sanchez Costa

12:20pm **Lunch & Networking**
Networking & Break Area

1:30pm **Nanopore sensors II**
Gaudi Room

1:30pm **Single-Molecule Sensing of Cell Secretion using Force-Controlled Nanopores**
» Mr. Til Schlotter, Mr. Sean Weaver, Prof. Janos Vörös, Prof. Tomaso Zambelli, Dr. Morteza Aramesh

1:45pm **Dynamics of driven DNA transport through a synthetic nanopore**
» Dr. Kaikai Chen, Dr. Ining Jou, Dr. Niklas Ermann, Prof. Murugappan Muthukumar, Dr. Nicholas A. W. Bell, Prof. Ulrich Keyser

2pm **Protein adaptor signals in a biological nanopore sensor for metabolite detection**
» Dr. Sarah Zernia, Mr. Nieck van der Heide, Ms. Nicole S. Galenkamp, Dr. Giorgos Gouridis, Prof. Giovanni Maglia

2:15pm **Design and modeling of a nanopore transistor**
» Dr. Dino Ruic, Mr. Kherim Willems, Mr. Ashesh Ray Chaudhuri, Dr. Chia Ling Chan, Dr. Simone Severi, Mr. Mihir Gupta, Dr. Willem Van Roy, Dr. Chang Chen, Dr. Pol Van Dorpe

2:30pm **Engineered aerolysin nanopores for improved molecular sensing**
» Prof. Matteo Dal Peraro

2:45pm **Flossing DNA in a Dual Nanopore Device**
» Dr. Xu Liu, Mr. Philip Zimny, Dr. Yuning Zhang, Mr. Ankit Rana, Dr. Roland Nagel, Dr. Walter Reisner, Dr. William Dunbar

1:30pm **Microscopy, single-molecule scattering & localisation I**
Sagrada Room
Chaired by: Dr. Barbora Spackova

1:30pm **Direct phase measurement of the light scattered by a single plasmonic nanoparticle**
» Dr. Frank Wackenhut, Mr. Otto Hauler, Mr. Lukas A. Jakob, Mr. Alexander Stuhl, Dr. Florian Laible, Prof. Monika Fleischer, Dr. Kai Braun, Prof. Alfred J. Meixner

1:45pm **Non destructive readout camera technology for single molecule localisation**
» Prof. Ashley Cadby

2pm **Fisher Information in Phase Microscopy**
» Dr. Dorian Bouchet, Mr. Dante Maestre, Mr. Jonathan Dong, Dr. Thomas Juffmann

2:15pm **Quantifying fundamental limits for measuring the three-dimensional orientation of dipole emitters**
» Mr. Oumeng Zhang, Prof. Matthew Lew

2:30pm **Ultrasensitive Laser Scanning Confocal Microscopy for Single Molecule Counting**
» Dr. Alan Li

1:30pm **Single-molecule fluorescence I**
Ramblas Room
Chaired by: Dr. Lucien Weiss

1:30pm **Extreme laser background suppression for resonant fluorescence of a quantum emitter**
» Ms. meryem benelajla

1:45pm **Synthesis and characterization of halide compounds doped with RE 3+ nanoparticles and their use as nanothermometers**
» Dr. Carlos Renero - Lecuna, Prof. Luis Liz-Marzán, Mrs. Marta Quintanilla-Morales

Continued from **Wednesday, 11 November**

2pm **Luminescent gold nanoclusters as new probes in single photon and multiphoton imaging**
» Dr. Joanna Olesiak-Banska, Dr. Magdalena Waszkielewicz, Ms. Anna Pniakowska, Mr. Patryk Obstarczyk, Prof. Marek Samoc

2:15pm **Single molecule probing of interplay between Energy Transfer and Metal-Enhanced Fluorescence**
» Mr. Kamil Wiwatowski, Ms. Karolina Sulowska, Prof. Sebastian Maćkowski

2:30pm **Analysis of exosome drug-loading yields by means of fluorescence cross-correlation spectroscopy**
» Dr. Maryam Sanaee, Ms. Elin Sandberg, Dr. Göran Ronquist, Prof. Jane M. Morrell, Prof. Jerker Widengren, Prof. Katia Gallo

2:45pm **Improving single molecule FRET using zero-mode waveguide nanoapertures**
» Mr. Mikhail Baibakov, Dr. Jérôme Wenger, Dr. Satyajit Patra, Dr. Jean Benoît Claude

3pm **Break & Networking**
Networking & Break Area

3:20pm **Nanofluidics**
Gaudi Room
Chaired by: Dr. Leo Gross

3:20pm **Optical monitoring of catalytic reactions confined in microdroplets**
» Ms. Veronica Krasecki, Mr. Andrew Cavell, Prof. Randall Goldsmith

3:35pm **Direct digital sensing of proteins in solution through single-molecule optofluidics**
» Dr. Kadi Saar, Dr. Georg Krainer, Dr. William Arter, Prof. Tuomas Knowles

3:50pm **'Smart' nanoporous membranes for electrochemically switchable ion transport: theory and experiment**
» Prof. Ilya Ryzhkov, Dr. Mikhail Simunin, Dr. Stanislav Khartov, Mrs. Sofia Kozlova, Mr. Dmitry Guzei

4:05pm **Fiber-based optical microcavities for biosensing in liquids**
» Mrs. Larissa Kohler, Dr. Christian Kern, Dr. Matthias Mader, Prof. Martin Wegener, Prof. David Hunger

4:20pm **Fast diffusion-independent microfluidic mixing for single-molecule sensing**
» Prof. Thorsten Hugel

4:35pm **Precise placement of nano-objects utilizing geometry induced trapping in a tunable nanofluidic confinement**
» Dr. Stefan Fringes, Dr. Christian Schwemmer, Dr. Colin D. Rawlings, Dr. Francesca Ruggeri, Dr. Heiko Wolf, Dr. Armin Knoll

3:20pm **Single-molecule biophysics III**
Sagrada Room
Chaired by: Dr. Lucien Weiss

3:20pm **Light-induced conformational changes of Channelrhodopsin probed by photothermal expansion mid-infrared nanospectroscopy**
» Dr. Valeria Giliberti, Mrs. Raffaella Polito, Ms. Maria Eleonora Temperini, Dr. Eglof Ritter, Dr. Matthias Broser, Prof. Peter Hegemann, Dr. Ljiljana Puskar, Dr. Ulrich Schade, Dr. Leonetta Baldassarre, Prof. Michele Ortolani

3:35pm **Hypericin: Single Molecule Spectroscopy of an Active Natural Drug**
» Prof. Alfred J. Meixner, Mr. Quan Liu, Mr. Otto Hauler, Ms. Miriam Scholz, Prof. Pierre_Michel Adam, Prof. Marc Brecht, Dr. Frank Wackenhut

3:50pm **Small low-affinity protein-labeling tags for live-cell nanoscopy**
» Dr. Alexander Mishin, Mr. Maxim Perfilov, Mr. Alexey Gavrikov

Continued from **Wednesday, 11 November**

4:05pm **Substrate processing by the 26S proteasome visualized by smFRET**
» Dr. Erik Jonsson, Dr. Zaw Htet, Dr. Jared Bard, Dr. Ken Dong, Dr. Andreas Martin

4:20pm **Orientations of transiently binding Nile red molecules reveal the organization of amyloid aggregates**
» Mr. Tianben Ding, Ms. Tingting Wu, Mr. Hesam Mazidi, Mr. Oumeng Zhang, Prof. Matthew Lew

4:35pm **Single-molecule orientation imaging for probing lipid nanodomains**
» Dr. Jin Lu, Mr. Hesam Mazidi, Mr. Tianben Ding, Mr. Oumeng Zhang, Prof. Matthew Lew

3:20pm **Single-molecule fluorescence II**
Ramblas Room

3:20pm **Fluorescence recovery after orientational photobleaching (FROP) at the surface of 1D photonic crystals: a new tool to study rotational diffusion kinetics of proteins bound at an interface**
» Ms. Elisabetta Sepe, Dr. Alberto Sinibaldi, Dr. Norbert Danz, Dr. Peter Munzert, Prof. Francesco Michelotti

3:35pm **Integrated label-free and fluorescence photonic crystal biochips for early cancer biomarker detection**
» Ms. Elisabetta Sepe, Dr. Alberto Sinibaldi, Dr. Norbert Danz, Dr. Agostino Occhicone, Dr. Matteo Allegretti, Dr. Peter Munzert, Mr. Tommaso Pileri, Dr. Patrizio Giacomini, Prof. Francesco Michelotti

3:50pm **Different structures of Pt(II)-metalloporphyrins used in sensing applications**
» Prof. Eugenia FAGADAR-COSMA, Dr. Nicoleta Plesu

4:05pm **Single-Molecule FRET for Protein Fingerprinting**
» Mr. Mike Filius, Dr. Sung Hyun Kim, Dr. Chirlmin Joo

4:20pm **Advances in inorganic voltage nanosensors**
» Prof. Shimon Weiss

4:50pm **Break & Networking**
Networking & Break Area

5:10pm **Plenary Session**
Gaudi Room
Chaired by: Prof. Frank Vollmer

5:10pm **Nanopores, from single-molecule biology to single-molecule protein sequencing**
» Prof. Cees Dekker

5:55pm **New Developments in Single-Molecule Super-Resolution Imaging and Tracking**
» Prof. W.E. Moerner

6:40pm **Closing Speech**
Gaudi Room