



*Founded in 1931*

**GORDON RESEARCH CONFERENCES** *frontiers of science*  
512 Liberty Lane, West Kingston, RI 02892  
Phone: 401 783-4011 Fax: 401 783-7644  
E-Mail: [grc@grc.org](mailto:grc@grc.org)  
World Wide Web: <http://www.grc.org>

**Nancy Ryan Gray, Ph.D.**  
Director

**2010 GORDON RESEARCH CONFERENCE  
on SINGLE MOLECULE APPROACHES TO BIOLOGY**

**FINAL PROGRESS REPORT**

DEPARTMENT OF ENERGY  
GRANT NO. DE-SC0004626

The Gordon Research Conference on **SINGLE MOLECULE APPROACHES TO BIOLOGY** was held at Il Ciocco Hotel & Resort, Barga, Italy, July 4-9, 2010. The Conference was well-attended with 199 participants (attendees list attached). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both U.S. and foreign scientists, senior researchers, young investigators, and students. Of the 199 attendees, 56 voluntarily responded to a general inquiry regarding ethnicity which appears on our registration forms. Of the 56 respondents, 32% were Minorities – 7% Hispanic & 25% Asian. Approximately 28% of the participants at the 2010 meeting were women.

In designing the formal speakers program, emphasis was placed on current unpublished research and discussion of the future target areas in this field. There was a conscious effort to stimulate lively discussion about the key issues in the field today. Time for formal presentations was limited in the interest of group discussions. In order that more scientists could communicate their most recent results, poster presentation time was scheduled. Attached is a copy of the formal schedule and speaker program and the poster program. In addition to these formal interactions, "free time" was scheduled to allow informal discussions. Such discussions are fostering new collaborations and joint efforts in the field.

Thank you for your support of this Conference. As you know, in the interest of promoting the presentation of unpublished and frontier-breaking research, Gordon Research Conferences does not permit publication of meeting proceedings. If you wish any further details, please feel free to contact me. Thank you.

Sincerely,  
*William E Moerner, Conference Co-Chairperson*  
STANFORD UNIVERSITY

## **Single Molecule Approaches to Biology**

June 27 - July 2, 2010

Il Ciocco Hotel and Resort

Lucca (Barga), Italy

Chairs:

Nynke H. Dekker & William E. Moerner

Vice Chairs:

Julio M. Fernandez & Stefan W. Hell

---

The 2010 Gordon Conference on Single-Molecule Approaches to Biology focuses on cutting-edge research in single-molecule science. Tremendous technical developments have made it possible to detect, identify, track, and manipulate single biomolecules in an ambient environment or even in a live cell. Single-molecule approaches have changed the way many biological problems are addressed, and new knowledge derived from these approaches continues to emerge.

The ability of single-molecule approaches to avoid ensemble averaging and to capture transient intermediates and heterogeneous behavior renders them particularly powerful in elucidating mechanisms of biomolecular machines: what they do, how they work individually, how they work together, and finally, how they work inside live cells. The burgeoning use of single-molecule methods to elucidate biological problems is a highly multidisciplinary pursuit, involving both force- and fluorescence-based methods, the most up-to-date advances in microscopy, innovative biological and chemical approaches, and nanotechnology tools.

This conference seeks to bring together top experts in molecular and cell biology with innovators in the measurement and manipulation of single molecules, and will provide opportunities for junior scientists and graduate students to present their work in poster format and to exchange ideas with leaders in the field. A number of excellent poster presenters will be selected for short oral talks. Topics as diverse as single-molecule sequencing, DNA/RNA/protein interactions, folding machines, cellular biophysics, synthetic biology and bioengineering, force spectroscopy, new method developments, superresolution imaging in cells, and novel probes for single-molecule imaging will be on the program.

Additionally, the collegial atmosphere of this Conference, with programmed discussion sessions as well as opportunities for informal gatherings in the afternoons and evenings in the beauty of the Il Ciocco site in Tuscany, provides an avenue for scientists from different disciplines to interact and brainstorm and promotes cross-disciplinary collaborations directed toward compelling biological problems.

---

### **Contributors**



nature  
structural &  
molecular biology

Integrative Biology



## SUNDAY

4:00 pm - 8:00 pm Arrival and Check-in (Check-in Desk Closed 6:00 pm - 7:45 pm)

6:00 pm Dinner

7:30 pm - 7:40 pm Welcome / Introductory Comments by GRC Site Staff

7:40 pm - 9:30 pm **SINGLE-MOLECULE SEQUENCING**

7:40 pm - 7:50 pm Discussion Leader: **William E. Moerner** (Stanford University)

7:50 pm - 8:15 pm **Stephen Quake** (Stanford University)  
"Single Molecule Sequencing of a Human Genome"

8:15 pm - 8:25 pm Discussion

8:25 pm - 8:50 pm **Jonas Korlach** (Pacific Biosciences)  
"Applications of Single-Molecule, Real-Time DNA Sequencing"

8:50 pm - 9:00 pm Discussion

9:00 pm - 9:25 pm **Hagan Bayley** (University of Oxford)  
"Single-molecule chemistry in a protein nanoreactor"

9:25 pm - 9:30 pm Discussion

## MONDAY

7:30 am - 8:30 am Breakfast

9:00 am - 12:30 pm **DNA/RNA/PROTEIN INTERACTIONS**

9:00 am - 9:10 am	Discussion Leader: <b>Nynke Dekker</b> (TU Delft)
9:10 am - 9:35 am	<b>Taekjip Ha</b> (University of Illinois) "A tale of three exonucleases"
9:35 am - 9:45 am	Discussion
9:45 am - 10:10 am	<b>Michelle Wang</b> (Cornell University) "Torsional studies of single biological molecules"
10:10 am - 10:20 am	Discussion
10:20 am - 10:32 am	<b>Irina Gopich</b> (NIH) "Theory and analysis of single-molecule photon trajectories and FRET efficiency histograms"
10:32 am - 10:35 am	Discussion
10:35 am	Coffee Break / Group Photo
11:05 am - 11:30 am	<b>Helmut Schiessel</b> (Leiden University) "Chromatin, a multi-scale jigsaw puzzle"
11:30 am - 11:40 am	Discussion
11:40 am - 12:05 pm	<b>Johan Hofkens</b> (KU Leuven) "Single molecule spectroscopy of biopolymers"
12:05 pm - 12:15 pm	Discussion
12:15 pm - 12:27 pm	<b>Borja Ibarra</b> (Universidad Autonoma Madrid) "Phi29 DNA polymerase actively separates DNA strands during DNA replication"
12:27 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 5:30 pm	Poster Session One
5:30 pm - 7:30 pm	<b>FOLDING MACHINES</b>
5:30 pm - 5:40 pm	Discussion Leader: <b>Don Lamb</b> (LMU, Munich)
5:40 pm - 6:05 pm	<b>Benjamin Schuler</b> (University of Zürich) "Probing chaperonin-mediated protein folding with single-molecule FRET"
6:05 pm - 6:13 pm	Discussion
6:13 pm - 6:38 pm	<b>Sander Tans</b> (AMOLF) "Protein folding pathways shaped by chaperones"
6:38 pm - 6:46 pm	Discussion
6:46 pm - 7:11 pm	<b>Vijay Pande</b> (Stanford University) "Using new theoretical advances to improve the analysis of experimental single molecule data"
7:11 pm - 7:19 pm	Discussion
7:19 pm - 7:28 pm	<b>Takashi Funatsu</b> (University of Tokyo)

"Single-molecule characterization of the football-shaped GroEL-GroES complex using zero-mode waveguides"

7:28 pm - 7:30 pm Discussion

8:00 pm Dinner

## TUESDAY

7:30 am - 8:30 am Breakfast

### CELLULAR BIOPHYSICS

9:00 am - 9:10 am Discussion Leader: **Thomas Schmidt** (Leiden University)

9:10 am - 9:35 am **Michael Elowitz** (California Institute of Technology)  
"Dynamic signal encoding at the single-cell level"

9:35 am - 9:45 am Discussion

9:45 am - 10:10 am **Paul Wiggins** (Whitehead Institute)  
"Folding a prokaryotic chromosome"

10:10 am - 10:20 am Discussion

10:20 am - 10:32 am **Thomas Kuhlman** (Princeton University)  
"Genome Organization and its Consequences for Gene Regulation in *E. coli*"

10:32 am - 10:35 am Discussion

10:35 am Coffee Break

11:05 am - 11:30 am **David Sherratt** (University of Oxford)  
"Dissecting the *in vivo* stoichiometry and architecture of active *E. coli* DNA replication machinery"

11:30 am - 11:40 am Discussion

11:40 am - 12:05 pm **Maxime Dahan** (Ecole Normale Supérieure, Paris)  
"Addressing the nuclear dynamics and target search of transcription factors in eukaryotic cells"

12:05 pm - 12:15 pm Discussion

12:15 pm - 12:27 pm **Jie Xiao** (Johns Hopkins University)  
"Probing the Dynamics of Gene Autoregulation in single *E. coli* cells"

12:27 pm - 12:30 pm Discussion

12:30 pm Lunch

1:30 pm - 4:00 pm Free Time

4:00 pm - 5:30 pm Poster Session Two

### SYNTHETIC BIOLOGY AND BIOENGINEERING

5:30 pm - 7:30 pm Discussion Leader: **Hermann Gaub** (LMU Munich)

5:30 pm - 5:40 pm **William Shih** (Harvard University)  
"Self-assembly of DNA into nanoscale three-dimensional shapes"

6:05 pm - 6:15 pm Discussion

6:15 pm - 6:40 pm	<b>Jörg Fitter</b> (Research Center Jülich) "Single molecule fluorescence studies on proteins encapsulated in surface tethered polymersomes"
6:40 pm - 6:50 pm	Discussion
6:50 pm - 7:02 pm	<b>Victoria Birkedal</b> (Aarhus University) "Single molecule FRET microscopy studies of DNA nanostructures"
7:02 pm - 7:05 pm	Discussion
7:05 pm - 7:17 pm	<b>Charina Choi</b> (University of California, Berkeley) "A nanocrystal strain gauge for optical detection of biomechanical forces"
7:17 pm - 7:20 pm	Discussion
8:00 pm	Dinner

## WEDNESDAY

7:30 am - 8:30 am	Breakfast
<b>FORCE SPECTROSCOPY</b>	
9:00 am - 9:10 am	Discussion Leader: <b>Julio Fernandez</b> (Columbia University)
9:10 am - 9:35 am	<b>Michael Woodside</b> (University of Alberta) "Force spectroscopy of adenine riboswitch folding"
9:35 am - 9:45 am	Discussion
9:45 am - 10:10 am	<b>Erik Schäffer</b> (TU Dresden) "Nanomechanics with Optical Tweezers: Kinesin Motors Work against Protein Friction"
10:10 am - 10:20 am	Discussion
10:20 am - 10:32 am	<b>Jan Lipfert</b> (TU Delft) "Novel Approaches using Magnetic Tweezers"
10:32 am - 10:35 am	Discussion
10:30 am	Coffee Break
11:05 am - 11:30 am	<b>Klaus Schulten</b> (University of Illinois) "New force-extension-structure characteristics of protein and DNA discovered through simulation and observation"
11:30 am - 11:40 am	Discussion
11:40 am - 12:05 pm	<b>Jasna Brujic</b> (New York University) "Single molecule force spectroscopy reveals hidden complexities in the structure and dynamics of proteins"
12:05 pm - 12:15 pm	Discussion
12:15 pm - 12:27 pm	<b>Matthew Larson</b> (Stanford University) "The mechanism of hairpin-mediated transcription termination"
12:27 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time

4:00 pm - 5:30 pm	Poster Session Three
5:30 pm - 7:30 pm	<b>NEW FRONTIERS IN METHODS</b>
5:30 pm - 5:40 pm	Discussion Leader: <b>Taekjip Ha</b> (University of Illinois)
5:40 pm - 6:05 pm	<b>Haw Yang</b> (Princeton University) "Real-Time 3D Single-Particle Tracking Spectroscopy and Imaging"
6:05 pm - 6:13 pm	Discussion
6:13 pm - 6:38 pm	<b>Adam Cohen</b> (Harvard University) "Optical recording of electrical spikes in <i>E. coli</i> using a new class of voltage-sensitive fluorescent proteins"
6:38 pm - 6:46 pm	Discussion
6:46 pm - 7:11 pm	<b>Tom Perkins</b> (JILA/University of Colorado) "Precision force spectroscopy: a new window on the dynamics of folding and refolding membrane proteins"
7:11 pm - 7:19 pm	Discussion
7:19 pm - 7:28 pm	<b>Randall Goldsmith</b> (Stanford University) "Watching conformational- and photodynamics of single fluorescent proteins in solution"
7:28 pm - 7:30 pm	Discussion
7:30 pm - 8:00 pm	<u>Business Meeting</u> (Nominations for the next Vice Chair; Fill out Conference Evaluation Forms; Discuss future Site & Scheduling preferences; Election of the next Vice Chair)
8:00 pm	Dinner

<b>THURSDAY</b>	
7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	<b>SUPERRESOLUTION</b>
9:00 am - 9:10 am	Discussion Leader: <b>Stefan Hell</b> (MPI Göttingen)
9:10 am - 9:35 am	<b>Xiaowei Zhuang</b> (Harvard) "Superresolution imaging"
9:35 am - 9:45 am	Discussion
9:45 am - 10:10 am	<b>Christian Eggeling</b> (MPI Göttingen) "Details of nanoscale membrane dynamics revealed by far-field fluorescence nanoscopy"
10:10 am - 10:20 am	Discussion
10:20 am - 10:32 am	<b>Ann McEvoy</b> (University of California, Berkeley) "Spatial organization in bacteria studied with super-resolution fluorescence microscopy"
10:32 am - 10:35 am	Discussion
10:35 am	Coffee Break

11:05 am - 11:30 am	<b>Jörg Bewersdorf</b> (Yale University) "New developments and applications in STED microscopy and FPALM"
11:30 am - 11:40 am	Discussion
11:40 am - 12:05 pm	<b>Raimund Ober</b> (University of Texas, Southwestern) "Multifocal plane microscopy for imaging single molecules in 3D"
12:05 pm - 12:15 pm	Discussion
12:15 pm - 12:27 pm	<b>Cristina Flors</b> (University of Edinburgh) "Super-resolution microscopy of DNA"
12:27 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 5:30 pm	Poster Session Four
5:30 pm - 7:30 pm	<b>PROBE DEVELOPMENT FOR SINGLE-MOLECULE EXPERIMENTS</b>
5:30 pm - 5:40 pm	Discussion Leader: <b>Xiaowei Zhuang</b> (Harvard University)
5:40 pm - 6:05 pm	<b>George Patterson</b> (National Institutes of Health) "Development of fluorescent proteins for single molecule localization techniques"
6:05 pm - 6:13 pm	Discussion
6:13 pm - 6:38 pm	<b>Alice Ting</b> (Massachusetts Institute of Technology) "Enzymatic ligation of probes for single molecule and super-resolution imaging in cells"
6:38 pm - 6:46 pm	Discussion
6:46 pm - 6:55 pm	<b>Fabien Pinaud</b> (Ecole Normale Supérieure) "Complementation Activated Light Microscopy with split-Fluorescent Proteins (CALM-sFP): A new approach for targeting and imaging single molecules in living cells"
6:55 pm - 6:57 pm	Discussion
6:57 pm - 7:22 pm	<b>Philip Tinnefeld</b> (University of Munich) "Make them blink: Controlling Fluorescent Dyes for Single-Molecule and Superresolution Microscopy"
7:22 pm - 7:30 pm	Discussion
8:00 pm	Dinner

## FRIDAY

7:30 am - 8:30 am	Breakfast
9:00 am	Depart

### Single Molecule Approaches to Biology (2010)

Name	Organization	Participation	Status
AARON, JESSE S	SANDIA NATIONAL LABORATORIES	Poster Presenter	Registered
AARTSMA, THIJS T.J.	LEIDEN UNIVERSITY	Poster Presenter	Registered
AKKILIC, NAMIK N	LEIDEN INSTITUTE OF PHYSICS	Poster Presenter	Registered
ALTMAN-ROSENFELD, LIAT	BAR ILAN UNIVERSITY	Poster Presenter	Registered
ANNIBALE, PAOLO	ECOLE POLYTECHNIQUE FEDERALE LAUSANNE	Poster Presenter	Registered
ANTONIK, MATTHEW	UNIVERSITY OF KANSAS	Poster Presenter	Registered
BATES, MARK	MAX PLANCK INSTITUTE FOR BIOPHYSICAL CHEMISTRY	Poster Presenter	Registered
BAYLEY, HAGAN P	OXFORD UNIVERSITY	Speaker	Registered
BEWERSDORF, JOERG	YALE UNIVERSITY	Speaker	Registered
BIRKEDAL, VICTORIA	AARHUS UNIVERSITY	Poster Presenter	Registered
BITEEN, JULIE	UNIVERSITY OF MICHIGAN	Attendee	Registered
BLASER, GEORG	CAMBRIDGE UNIVERSITY	Poster Presenter	Registered
BLUM, SUZANNE A	UNIVERSITY OF CALIFORNIA, IRVINE	Poster Presenter	Registered
BORMUTH, VOLKER	MAX PLANCK INSTITUTE OF CELL BIOLOGY AND GENETICS	Poster Presenter	Registered
BRONSON, JONATHAN E	COLUMBIA UNIVERSITY	Poster Presenter	Registered
BRUJIC, JASNA	NEW YORK UNIVERSITY	Speaker	Registered
CAMBI, ALESSANDRA	RADBOUD UNIVERSITY NIJMEGEN MEDICAL CENTRE	Poster Presenter	Registered
CARRASCO PULIDO, CAROLINA	CSIC, CENTRO NATIONAL BIOTECNOLOGIA	Poster Presenter	Registered
CAVALLI, VALERIA	WASHINGTON UNIVERSITY SCHOOL OF MEDICINE	Poster Presenter	Registered
CELEBRANO, MICHELE	ETH ZÜRICH	Poster Presenter	Registered
CHIMEREL, CATALIN	UNIVERSITY OF CAMBRIDGE	Poster Presenter	Registered
CHOI, CHARINA L	UC BERKELEY	Poster Presenter	Registered
CHOU, CHIA-FU	ACADEMIA SINICA	Poster Presenter	Registered
CHOWDHURY, PRAMIT K	INDIAN INSTITUTE OF TECHNOLOGY DELHI	Poster Presenter	Registered
CIPRIANY, BENJAMIN	CORNELL UNIVERSITY	Poster Presenter	Registered

<b>CISSE, IBRAHIM</b>	ECOLE NORMALE SUPERIEURE-PARIS	Poster Presenter	Registered
<b>COATES, COLIN</b>	ANDOR TECHNOLOGY	Poster Presenter	Registered
<b>COHEN, ADAM E</b>	HARVARD UNIVERSITY	Speaker	Registered
<b>CORDES, THORBEN</b>	UNIVERSITY OF OXFORD	Poster Presenter	Registered
<b>COSA, GONZALO</b>	MCGILL UNIVERSITY	Poster Presenter	Registered
<b>CROQUETTE, VINCENT</b>	LPS-ENS	Poster Presenter	Registered
<b>CUI, BIANXIAO</b>	STANFORD UNIVERSITY	Poster Presenter	Registered
<b>CUI, JIAN</b>	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
<b>DAHAN, MAXIME</b>	ECOLE NORMALE SUPERIEURE	Speaker	Registered
<b>DAWN, AMRITA</b>	ISGEB New Delhi	Attendee	Registered
<b>DE KEIJZER, SANDRA S</b>	RADBOUD UNIVERSITY	Poster Presenter	Registered
<b>DEKKER, CEES</b>	DELFT UNIVERSITY OF TECHNOLOGY	Poster Presenter	Registered
<b>DEKKER, NYNKE H</b>	TU DELFT	Chair	Registered
<b>DEVILLE, KARINE</b>	UNIVERSITY OF LEEDS	Poster Presenter	Registered
<b>DIKIC, JASMINA</b>	JUSTUS-LIEBIG-UNIVERSITY GIESSEN	Poster Presenter	Registered
<b>DING, FANGYUAN</b>	LABORATOIRE DE PHYSIQUE STATISTIQUE	Poster Presenter	Registered
<b>DONHAUSER, ZACHARY J</b>	VASSAR COLLEGE	Poster Presenter	Registered
<b>DUDKO, OLGA K</b>	UNIVERSITY OF CALIFORNIA, SAN DIEGO	Poster Presenter	Registered
<b>EGGELING, CHRISTIAN</b>	MPI BIOPHYSICAL CHEMISTRY	Speaker	Registered
<b>ELVEKROG, MARGARET M</b>	COLUMBIA UNIVERSITY	Poster Presenter	Registered
<b>EVANKO, DANIEL</b>	NATURE METHODS	Attendee	Registered
<b>FARGE, GERALDINE</b>	VU UNIVERSITY	Poster Presenter	Registered
<b>FENZ, SUSANNE S</b>	LEIDEN INSTITUTE OF PHYSICS	Poster Presenter	Registered
<b>FERNANDEZ, JULIO M</b>	COLUMBIA UNIVERSITY	Vice Chair	Registered
<b>FITTER, JORG</b>	RESEARCH CENTER JUELICH	Speaker	Registered
<b>FLORS, CRISTINA</b>	UNIVERSITY OF EDINBURGH	Poster Presenter	Registered
<b>FOLLING, JONAS</b>	LEICA MICROSYSTEMS CMS GMBH	Poster Presenter	Registered
<b>FUJIWARA, MASANORI</b>	TOKYO INSTITUTE OF TECHNOLO	Poster	Registered

		Presenter	
<b>FUNATSU, TAKASHI</b>	THE UNIVERSITY OF TOKYO	Poster Presenter	Registered
<b>GANGULY, ABANTIKA</b>	INDIAN INSTITUTE OF SCIENCE	Poster Presenter	Registered
<b>GARCIA-PARAJO, MARIA F.</b>	IBEC-INSTITUTE FOR BIOENGINEERING OF CATALONIA	Poster Presenter	Registered
<b>GAUB, HERMANN</b>	LUDWIG-MAXIMILIANS-UNIVERSITAT MUNCHEN	Discussion Leader	Registered
<b>GOLDNER, LORI S</b>	UNIVERSITY OF MASSACHUSETTS	Poster Presenter	Registered
<b>GOLDSMITH, RANDALL H</b>	STANFORD UNIVERSITY	Poster Presenter	Registered
<b>GOPICH, IRINA</b>	NATIONAL INSTITUTES OF HEALTH	Poster Presenter	Registered
<b>GOULD, TRAVIS J</b>	YALE UNIVERSITY	Poster Presenter	Registered
<b>GRABMAYR, HEINRICH EP</b>	TECHNICAL UNIVERSITY MUNICH	Poster Presenter	Registered
<b>HA, TAEKJIP</b>	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN	Discussion Leader	Registered
<b>HALL, ADAM R</b>	TECHNICAL UNIVERSITY OF DELFT	Poster Presenter	Registered
<b>HAMANN, GERNOT</b>	PHYSIK INSTRUMENTE (PI) GMBH & CO. KG	Poster Presenter	Registered
<b>HAN, HEE-SUN</b>	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
<b>HARADA, YOSHIE</b>	KYOTO UNIVERSITY	Poster Presenter	Registered
<b>HATZAKIS, NIKOS S</b>	UNIVERSITY OF COPENHAGEN	Poster Presenter	Registered
<b>HELL, STEFAN W</b>	MAX PLANCK INSTITUTE FOR BIOPHYSICAL CHEMISTRY	Vice Chair	Registered
<b>HENRIQUES, RICARDO</b>	UNIVERSITY OF LISBON	Poster Presenter	Registered
<b>HERTEN, DIRK-PETER</b>	HEIDELBERG UNIVERSITY	Poster Presenter	Registered
<b>HEYES, COLIN D</b>	UNIVERSITY OF ARKANSAS	Poster Presenter	Registered
<b>HODGES, MARIA L</b>	NATURE STRUCTURAL & MOLECULAR BIOLOGY	Attendee	Registered
<b>HOFKENS, JOHAN</b>	KU LEUVEN BE419052173	Speaker	Registered
<b>HONG, SEOK-CHEOL</b>	KOREA UNIVERSITY	Poster Presenter	Registered
<b>HOSKINS, AARON A</b>	UMASS MEDICAL SCHOOL	Poster Presenter	Registered
<b>HUGEL, THORSTEN</b>	TECHNISCHE UNIVERSITÄT MÜNCHEN	Poster Presenter	Registered

HYEON, CHANGBONG	KOREA INSTITUTE FOR ADVANCED STUDY	Poster Presenter	Registered
IBARRA, BORJA	IMDEA NANOCIENCIA VAT: G84909068	Poster Presenter	Registered
JEPSEN, METTE B	AARHUS UNIVERSITY	Poster Presenter	Registered
JOH, RICHARD I	GEORGIA INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
JOSE, ANTONY M	HARVARD UNIVERSITY	Poster Presenter	Registered
KAD, NEIL M	UNIVERSITY OF ESSEX	Poster Presenter	Registered
KAHRA, DANA	UNIVERSITY OF LUBECK	Poster Presenter	Registered
KAISER, CHRISTIAN M	UNIVERSITY OF CALIFORNIA, BERKELEY	Poster Presenter	Registered
KARAM, PIERRE	MCGILL UNIVERSITY	Poster Presenter	Registered
KEDROV, ALEXEJ	UNIVERSITY OF GRONINGEN	Poster Presenter	Registered
KIM, IRENE S	HARVARD MEDICAL SCHOOL	Poster Presenter	Registered
KIM, SANGJIN	HARVARD UNIVERSITY	Poster Presenter	Registered
KLYACHKO, VITALY	WASHINGTON UNIVERSITY SCHOOL OF MEDICINE	Poster Presenter	Registered
KOBERLING, FELIX	PICOQUANT GMBH	Poster Presenter	Registered
KOMATSUZAKI, TAMIKI	HOKKAIDO UNIVERSITY	Poster Presenter	Registered
KORLACH, JONAS	PACIFIC BIOSCIENCES	Speaker	Registered
KOSURI, PALLAV	COLUMBIA UNIVERSITY	Poster Presenter	Registered
KUHLMAN, THOMAS E	PRINCETON UNIVERSITY	Poster Presenter	Registered
KUMAR, RAVINDRA	PENNSYLVANIA STATE UNIVERSITY	Poster Presenter	Registered
LAMB, DON C	LMU	Poster Presenter	Registered
LAMBOY, JORGE A	UNIVERSITY OF CALIFORNIA, SAN DIEGO	Poster Presenter	Registered
LANDES, CHRISTY F	RICE UNIVERSITY	Poster Presenter	Registered
LARSON, MATTHEW H	STANFORD UNIVERSITY	Poster Presenter	Registered
LAURENS, NIELS	VU UNIVERSITY AMSTERDAM	Poster Presenter	Registered
LEE, STEVEN F	STANFORD UNIVERSITY	Poster	Registered

		Presenter	
LEE, SANGHWA	SEOUL NATIONAL UNIVERSITY	Poster Presenter	Registered
LEE, GIL U	UNIVERSITY COLLEGE DUBLIN	Poster Presenter	Registered
LEE, JONG-BONG	POSTECH	Poster Presenter	Registered
LEMKE, EDWARD A	EMBL	Poster Presenter	Registered
LERNER, EITAN	BAR ILAN UNIVERSITY	Poster Presenter	Registered
LESLIE, KRIS	ERASMUS UNIVERSITY MEDICAL CENTRE	Poster Presenter	Registered
LESLIE, SABRINA	HARVARD UNIVERSITY	Poster Presenter	Registered
LEUBA, SANFORD	UNIVERSITY OF PITTSBURGH	Poster Presenter	Registered
LI, ISAAC TS	UNIVERSITY OF TORONTO	Poster Presenter	Registered
LI, PAN TX	SUNY ALBANY	Poster Presenter	Registered
LIPFERT, JAN	DELFT UNIVERSITY OF TECHNOLOGY	Poster Presenter	Registered
LIPMAN, EVERETT A	UNIVERSITY OF CALIFORNIA, SANTA BARBARA	Poster Presenter	Registered
LIU, DANIEL S	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
LOW-NAM, SHALINI T	UNIVERSITY OF NEW MEXICO HEALTH SCIENCES CENTER	Poster Presenter	Registered
LU, H. PETER	BOWLING GREEN STATE UNIVERSITY	Poster Presenter	Registered
MANLEY, SULIANA	EPFL	Poster Presenter	Registered
MANOSAS, MARIA	ECOLE NORMALE SUPERIEURE	Poster Presenter	Registered
MANTEGAZZA, FRANCESCO A	UNIVERSITA' DI MILANO-BICOCCA	Poster Presenter	Registered
MASSON, JEAN-BAPTISTE	INSTITUT PASTEUR	Poster Presenter	Registered
MCEVOY, ANN L	UNIVERSITY OF CALIFORNIA BERKELEY	Poster Presenter	Registered
MEINERS, JENS-CHRISTIAN D	UNIVERSITY OF MICHIGAN	Poster Presenter	Registered
MELLER, AMIT	BOSTON UNIVERSITY	Poster Presenter	Registered
MHLANGA, MUSA M	CSIR - SYNTHETIC BIOLOGY	Poster Presenter	Registered
MICHAELIS, JENS	LMU MUENCHEN	Poster	Registered

			Presenter
<b>MILLAR, DAVID P</b>	THE SCRIPPS RESEARCH INSTITUTE	Poster Presenter	Registered
<b>MINHAS, HARP S</b>	ROYAL SOCIETY OF CHEMISTRY	Attendee	Registered
<b>MOERNER, WILLIAM E</b>	STANFORD UNIVERSITY	Chair	Registered
<b>NEELY, ROBERT K</b>	KATHOLIEKE UNIVERSITEIT LEUVEN	Poster Presenter	Registered
<b>NESBITT, DAVID J</b>	JILA/NIST/ UNIVERSITY OF COLORADO	Poster Presenter	Registered
<b>NEUMAN, KEIR C</b>	NATIONAL INSTITUTES OF HEALTH	Poster Presenter	Registered
<b>OBER, RAIMUND</b>	UNIVERSITY OF TEXAS - DALLAS	Speaker	Registered
<b>PANDE, VIJAY S</b>	STANFORD UNIVERSITY	Speaker	Registered
<b>PATTERSON, GEORGE H</b>	NATIONAL INSTITUTES OF HEALTH	Speaker	Registered
<b>PEDACI, FRANCESCO</b>	TUDELFT	Poster Presenter	Registered
<b>PERKINS, THOMAS T</b>	UNIVERSITY OF COLORADO	Speaker	Registered
<b>PERTSINIDIS, ALEXANDROS</b>	UNIVERSITY OF CALIFORNIA, BERKELEY	Poster Presenter	Registered
<b>PETERMAN, ERWIN JG</b>	VU UNIVERSITY AMSTERDAM	Poster Presenter	Registered
<b>PINAUD, FABIEN</b>	ECOLE NORMALE SUPERIEURE	Poster Presenter	Registered
<b>PRALLE, ARND</b>	UNIVERSITY AT BUFFALO, SUNY	Poster Presenter	Registered
<b>QUAKE, STEPHEN R</b>	STANFORD UNIVERSITY	Speaker	Registered
<b>RADHAKRISHNAN, RANGARAJAN</b>	RENSSELAER POLYTECHNIC INSTITUTE	Poster Presenter	Registered
<b>RISSIN, DAVID M</b>	QUANTERIX CORPORATION	Poster Presenter	Registered
<b>RIVAS, FABIOLA V</b>	CELL	Attendee	Registered
<b>RODRIGUES, CRISTINA</b>	INSTITUT PASTEUR	Poster Presenter	Registered
<b>ROSENKRANZ, TOBIAS</b>	ISB-2 FORSCHUNGSZENTRUM JUELICH	Poster Presenter	Registered
<b>ROTEM, DVIR</b>	UNIVERSITY OF OXFORD	Poster Presenter	Registered
<b>ROUZINA, IOULIA F</b>	UNIVERSITY OF MINNESOTA	Poster Presenter	Registered
<b>RUEDA, DAVID</b>	WAYNE STATE UNIVERSITY	Poster Presenter	Registered
<b>RUTKAUSKAS, DANIELIS</b>	INSTITUTE OF PHYSICS	Poster Presenter	Registered
<b>SAKATA-SOGAWA, KUMIKO K</b>	RIKEN, RESEARCH CENTER FOR ALLERGY AND IMMUNOLOGY	Poster Presenter	Registered
<b>SANCHEZ, HUMBERTO</b>	ERASMUS UNIVERSITY MEDICAL CENTER	Poster Presenter	Registered

SCHAEFFER, ERIK	TU DRESDEN	Speaker	Registered
SCHIESSEL, HELMUT	LEIDEN UNIVERSITY	Speaker	Registered
SCHLIERF, MICHAEL	UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN	Poster Presenter	Registered
SCHMIDT, THOMAS	LEIDEN UNIVERSITY	Speaker	Registered
SCHULER, BENJAMIN	UNIVERSITY OF ZURICH	Speaker	Registered
SCHULTEN, KLAUS J	UNIVERSITY OF ILLINOIS	Speaker	Registered
SEIDEL, CLAUS A.M.	HEINRICH-HEINE-UNIVERSITY	Poster Presenter	Registered
SEKIGUCHI, HIROSHI	UNIVERSITY OF TOKYO	Poster Presenter	Registered
SHERRATT, DAVID	OXFORD UNIVERSITY	Speaker	Registered
SHIH, WILLIAM	DANA-FARBER CANCER INSTITUTE	Speaker	Registered
SIVASANKAR, SANJEEVI	IOWA STATE UNIVERSITY	Poster Presenter	Registered
SKEWIS, LYNELL R	BOSTON UNIVERSITY	Poster Presenter	Registered
SLETMOEN, MARIT	NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY	Poster Presenter	Registered
STAHL, STEFAN W	LUDWIG-MAXIMILANS-UNIVERSITY MUNICH	Poster Presenter	Registered
STAMOU, DIMITRIOS	UNIVERSITY OF COPENHAGEN	Poster Presenter	Registered
STEINHAUER, CHRISTIAN	LMU MUNICH	Poster Presenter	Registered
SZABO, ATTILA	NIH	Attendee	Registered
TABARES, LEANDRO C	CENTRE D'ETUDES DE SACLAY	Poster Presenter	Registered
TALAGA, DAVID S.	RUTGERS UNIVERSITY	Poster Presenter	Registered
TANNER, NATHAN A	ZERNIKE INSTITUTE FOR ADVANCED MATERIALS	Poster Presenter	Registered
TANS, SANDER J	AMOLF INSTITUTE	Speaker	Registered
TAYLOR, JAMES N	RICE UNIVERSITY	Poster Presenter	Registered
TELLEY, IVO A	EMBL	Poster Presenter	Registered
TESSMER, INGRID	UNIVERSITY OF WUERZBURG	Poster Presenter	Registered
TIMLIN, JERILYN A	SANDIA NATIONAL LABS	Poster Presenter	Registered
TING, ALICE Y	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Speaker	Registered
TINNEFELD, PHILIP	LUDWIG-MAXIMILIANS-UNIVERSITAT	Speaker	Registered
TOKUNAGA, MAKIO	TOKYO INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered

<b>VANDEN-EIJNDEN, ERIC</b>	NYU	Attendee	Registered
<b>VANNI, STEFANO</b>	EPFL	Poster Presenter	Registered
<b>WANG, HONG</b>	UNIVERSITY OF PITTSBURGH MEDICAL CENTER	Poster Presenter	Registered
<b>WANG, MICHELLE</b>	CORNELL UNIVERSITY	Speaker	Registered
<b>WANG, YAN MEI</b>	WASHINGTON UNIVERSITY IN ST. LOUIS	Poster Presenter	Registered
<b>WENNMALM, STEFAN</b>	ROYAL INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
<b>WICKERSHAM, CHARLES E</b>	UNIVERSITY OF CALIFORNIA, SANTA BARBARA	Poster Presenter	Registered
<b>WIGGINS, PAUL A</b>	WHITEHEAD INSTITUTE	Speaker	Registered
<b>WONG, WESLEY P</b>	HARVARD UNIVERSITY	Poster Presenter	Registered
<b>WOODSIDE, MICHAEL</b>	UNIVERSITY OF ALBERTA	Speaker	Registered
<b>WUITE, GIJS J</b>	VU UNIVERSITY AMSTERDAM	Poster Presenter	Registered
<b>XIAO, JIE</b>	JOHNS HOPKINS UNIVERSITY	Poster Presenter	Registered
<b>XU, JING</b>	UNIVERSITY OF CALIFORNIA, IRVINE	Poster Presenter	Registered
<b>YANG, HAW</b>	PRINCETON UNIVERSITY	Speaker	Registered
<b>YANG, GUOLIANG</b>	DREXEL UNIVERSITY	Poster Presenter	Registered
<b>YOO, HYEJIN</b>	YONSEI UNIVERSITY	Poster Presenter	Registered
<b>ZAWADZKI, PAWEŁ</b>	UNIVERSITY OF OXFORD	Poster Presenter	Registered
<b>ZOHAR, HAGAR</b>	UNIVERSITY OF CALIFORNIA, BERKELEY	Poster Presenter	Registered

**199 Attendees**