



Your Name:

31st Asilomar Conference on Mass Spectrometry

NATIVE MASS SPECTROMETRY-BASED STRUCTURAL BIOLOGY

Friday, October 16 - Tuesday, October 20, 2015
Asilomar Conference Center, Pacific Grove, CA

Organizers

Albert Heck

Utrecht University

Joe Loo

University of California, Los Angeles

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ASMS Asilomar Committee

Matt Bush

University of Washington

Lingjun Li

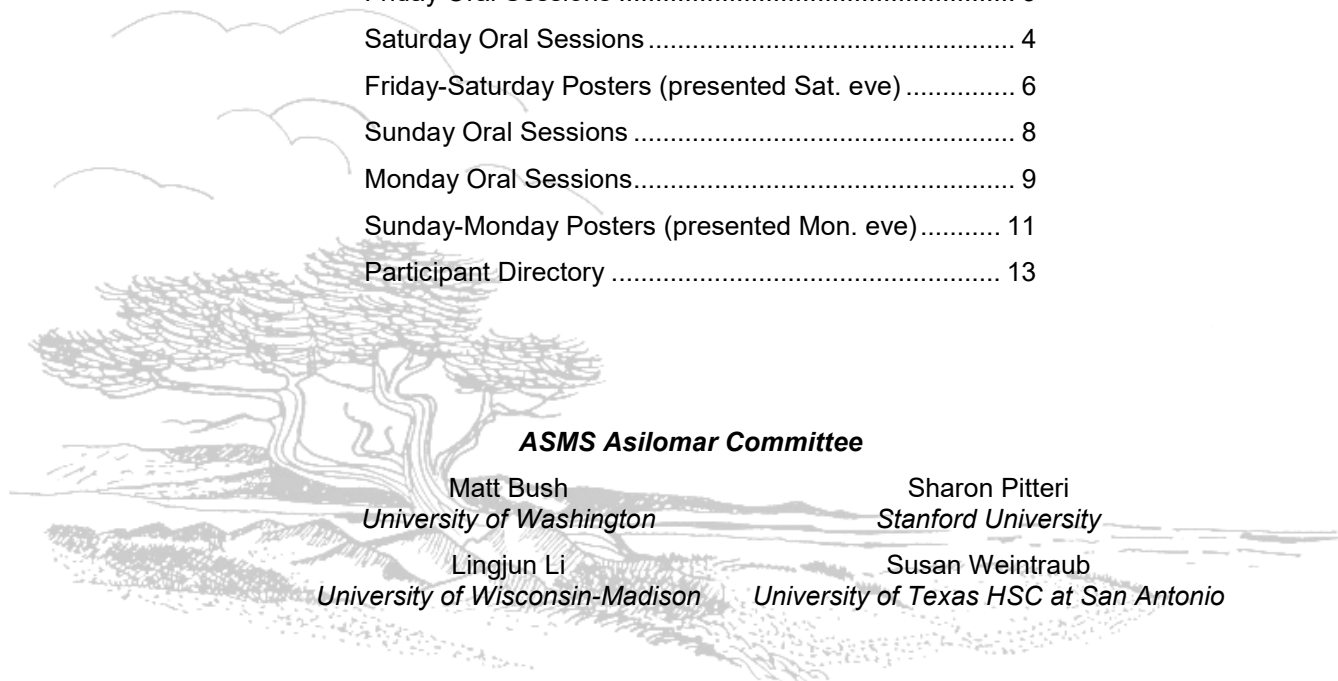
University of Wisconsin-Madison

Sharon Pitteri

Stanford University

Susan Weintraub

University of Texas HSC at San Antonio



GENERAL INFORMATION

Internet Access. There is complimentary wi-fi access in the session room (Chapel), sleeping rooms and the Social Hall (main building).

To use the wi-fi in Chapel (session room), please follow these instructions:

- Connect to the Asilomar Conference Network
- Passphrase is the word "conference" - in all lower case.
- Once connected, open your web browser.
- You should see Asilomar Conference Grounds login page.
- Scroll to the bottom of the page and use the Username and Password below:
Username: conf8690
Password: conf8690

Meals at Asilomar. For attendees lodging at Asilomar you will receive a meal tickets for all meals beginning with dinner on Friday and ending with lunch on Tuesday. Vegetarian option is always available upon request at the meal line. *For Tuesday a box lunch has been requested for you, please use your lunch ticket to pick up your box lunch on Tuesday morning on the West Deck of the Social Hall. More information will be emailed to you during the meeting.*

For attendees staying off-site you will receive three lunch tickets and three dinner tickets to be used as you wish Friday evening - Monday evening.

For everyone, to-go lunches are available Saturday, Sunday and/or Monday. If you wish to take your lunch to the beach or elsewhere, please go to the regular lunch window and request a "To-Go Lunch".

Conference Banquet and After-Dinner Talk. An upgraded meal served in a private room off of the main dining hall served with wine. Banquet ticket is required. Please look for signs directing you to the special outdoor entrance to our private banquet room.

After dinner we will reconvene in the session room for an after-dinner keynote talk by Brian Chait. Dessert will be served at this reception. Monday night will feature authors attending the Sun-Mon posters.

Evening Receptions. Friday, Saturday, and Monday evenings an informal reception is held in Chapel immediately following the evening session. These evening mixers are an opportunity to continue lively discussion and interact with fellow attendees. Saturday and Monday evenings look for authors attending their posters. There are two groups of posters (Fri-Sat and Sun-Mon).

Sunday Evening – Bonfire, S'Mores and Merry-making! A special evening outdoors (no posters, sorry) immediately following the Sunday evening session. Look for the flames near Crocker Dining Hall.

Presenter Guidelines.

Invited Speakers and Hot Topic Speakers. Please arrive in the Chapel 15 minutes prior to the start of the session to set up your laptop computer or load your presentation onto the conference computer (PC). If you have a Mac, please bring your own adapters.

Poster Presenters. All posters are located in the session room, Chapel. Poster boards will be numbered. There are two groups of posters, please note the posting and removal times listed below.

Friday-Saturday Posters

Mount posters by 7:00 pm Friday
Remove posters at 10:30 pm Saturday

Sunday-Monday Posters

Mount posters by 9:00 am Sunday
Remove posters at 10:00 pm Monday

Poster Highlight Talks

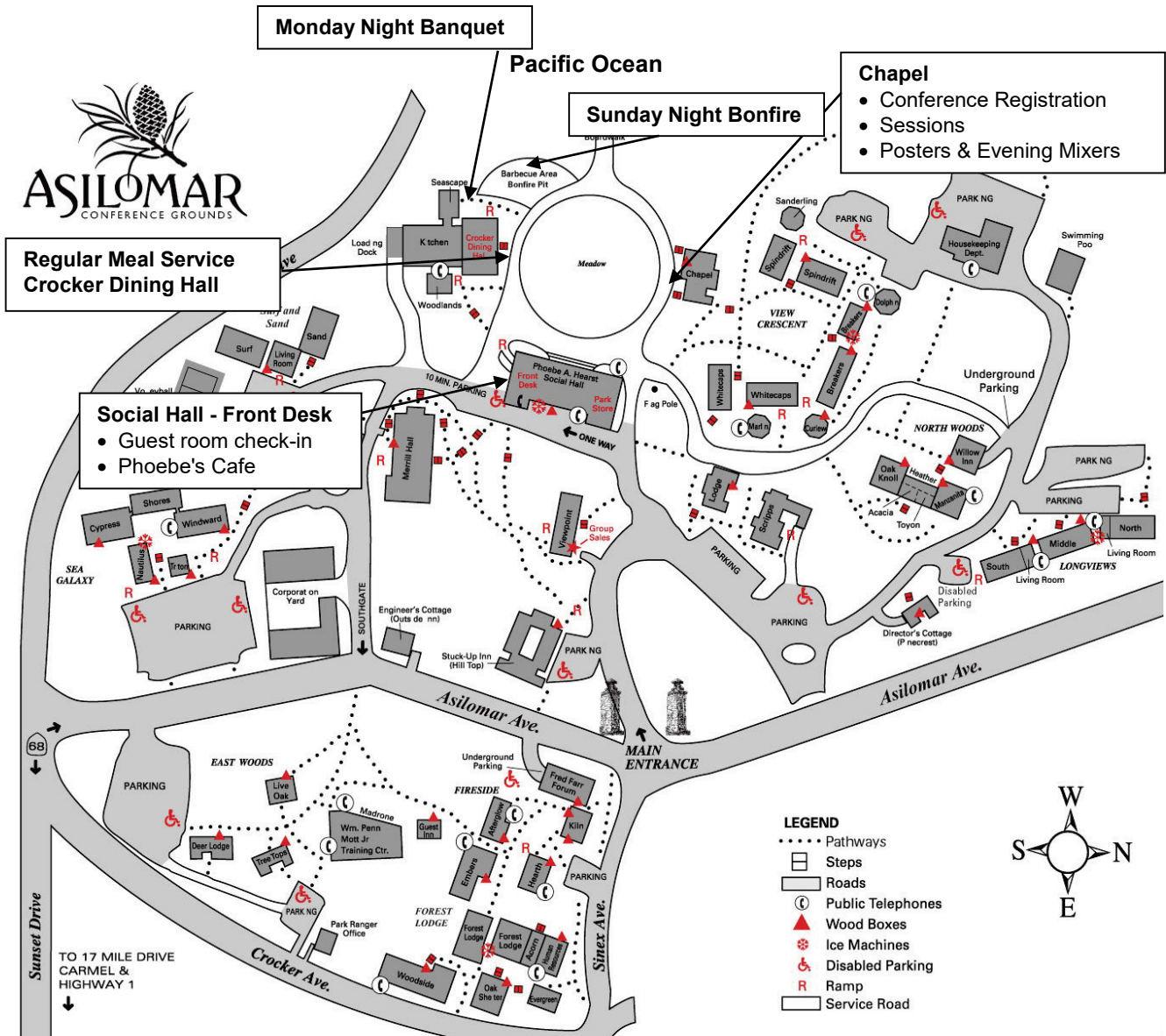
Follow instructions you received by email. Slides must be submitted in advance as specified.

Program Overview.

Friday	Evening Session	7:15 - 9:00 pm
	Reception	9:00 - 10:30 pm
Saturday	Morning Sessions	9:00 am – 12:00 pm
	Afternoon Session	1:15 - 5:30 pm
	Evening Session	7:15 - 9:00 pm
	Fri-Sat Posters & Reception	9:00 - 10:30 pm
Sunday	Morning Session	9:00 am - 12:10 pm
	Free Afternoon	
	Evening Session	7:15 - 9:00 pm
	Bonfire & S'Mores	9:00 - 11:00 pm
Monday	Morning Sessions	9:00 am - 12:00 pm
	Afternoon Session	1:15 - 4:05 pm
	Banquet	6:00 - 7:15 pm
	Evening Session	7:15 - 8:20 pm
	Sun-Mon Posters & Dessert Reception	8:20 - 10:00 pm

Sunday Afternoon. There is a free afternoon. Conference attendees are encouraged to join others for outings (rent bikes, visit the Aquarium, go to Laguna Seca Speedway, kayak). Suggest your own activity or sign up to join others --look for sign-up sheets in the rear of Chapel. .

ASILOMAR GROUNDS MAP



MONTEREY BAY AREA ATTRACTIONS

Sunday afternoon is scheduled free time. You are encouraged to relax on your own or with your fellow attendees. Look for sign-ups in the session room for those interested in group activities. Do you have a car and wish to visit the aquarium or maybe head to Laguna Seca Speedway to watch part of the races happening this weekend? Do you want to rent bikes with others and tour around the area? How about kayaking around Monterey Bay admiring sea otters and the renowned kelp forest as you paddle? Do you want to rent some clubs and play golf? **Be an instigator and list your activity on a sign-up sheet for others to join you.**

Some Ideas...

Accessible by foot, bus, bike or car:

- In Monterey --Monterey Bay Aquarium, Fisherman's Wharf, Cannery Row, kayaking on the bay.
- Pebble Beach attractions include the 17-Mile Drive which is accessible free-of-charge on foot or bike or enter by car for a fee.

Accessible by car:

- Carmel Valley is home to many wineries, farms, ranches and the historic Carmel Mission. Hiking in Big Sur or Point Lobos.

WELCOME

Native mass spectrometry provides a means to interrogate the structure of large biomolecules and complexes from a non-denaturing solution environment. The method has now matured and found its way into integrated structural biology projects, primarily to establish the unknown architecture of large protein complexes and molecular machineries. "Biomolecular Interactions" was the topic of the 2003 Asilomar Conference, but there has been many advancements since then, including the introduction of new mass analyzers, improvements in sample handling ionization techniques, the rapid adoption of ion mobility spectrometry, and the application of different ion activation methods to elucidate structure of and interactions within protein assemblies. New areas of application have emerged, focusing on the structures of e.g. viruses, membrane proteins, biopharmaceuticals and signaling nodes. The 2015 Conference will highlight the current state-of-the-art in Native Mass Spectrometry and how it can impact structural biology studies, and point to the future advances in this field. We wish all attendees an enjoyable and stimulating conference at Asilomar, "the refuge by the sea".

- Albert Heck and Joe Loo

FRIDAY, OCTOBER 16, 2015

4:00 - 6:00 pm: Registration in *Chapel*
Materials will also be available for pick-up during the sessions.

6:00 - 7:00 pm: Asilomar Dinner (onsite lodgers only), *Crocker Dining Hall*
If you are staying offsite, you may purchase a dinner meal ticket at the Asilomar Front Desk.

FRIDAY-SATURDAY POSTERS

Friday-Saturday Posters on display this evening through Saturday night. See complete listing on pages 6 - 7.

7:15 - 9:00 pm: **OPENING SESSION**, *Chapel*
There is a five-minute gap after each talk for Q&A.

7:15 - 7:25 pm	Opening Remarks; Albert Heck and Joe Loo
7:25 - 8:10 pm	Structural Biology in the Gas Phase – the First 25 Years ; Carol Robinson, <i>University of Oxford</i>
8:15 - 8:45 pm	From Native Virus Analysis to Metabolomics ; Gary Siuzdak, <i>The Scripps Research Institute</i>
8:55 pm	Welcome to this evening's reception by Aaron Bailey , <i>Thermo Fisher Scientific</i>

9:00 - 10:30 pm: **RECEPTION AND POSTERS**, *Chapel*

Special thanks to this evening's reception sponsor
THERMO SCIENTIFIC

Friday-Saturday Posters on display. See complete listing on pages 6 - 7.

SATURDAY, OCTOBER 17, 2015

7:30 - 9:00 am: Asilomar Breakfast (onsite lodgers only), *Crocker Dining Hall*
If you are staying offsite, you may purchase a breakfast meal ticket at the Asilomar Front Desk.

9:00 - 10:45 am: **IONIZATION AND NATIVE MS**, *Chapel*
 Session Chair: Rachel Loo, *UC Los Angeles*

There is a five-minute gap after each 30-minute talk for Q&A.

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|------------------|---|
| 9:00 - 9:30 am | Fundamentals of Protein Electrospray Ionization ; Lars Konermann, <i>University of Western Ontario</i> |
| 9:35 - 10:05 am | New Developments for Native LILBID-MS ; Nina Morgner, <i>Goethe-Universität Frankfurt</i> |
| 10:10 - 10:40 am | MALDI Mass Spectrometry for Studying Biomolecular Complexes ; Renato Zenobi, <i>ETH-Zurich</i> |

10:45 - 11:05 am: **COFFEE BREAK**

11:05 am - 12:00 pm: **POSTER HIGHLIGHT TALKS**, *Chapel*
 Presiding: Joe Loo, *UC Los Angeles*

Poster Highlight talks will be 2½ minutes max each.

After 2½ minutes presenters will "face the music" if they have not completed their presentation.

- | | |
|-------------------|---|
| Fri-Sat Poster 08 | Investigating the Gas-Phase Conformation of Fibroblast Growth Factors 1 Upon Binding of Heparin/HS Using Traveling Wave Ion Mobility Spectrometry (TWIMS); Yuejie Zhao , <i>University of Georgia</i> |
| Fri-Sat Poster 09 | Structure and Activity of the RNA Polymerase II - Capping Enzyme Complex Probed by Native Mass Spectrometry and Other Structural Biology Methods; Michiel van de Waterbeemd , <i>Utrecht University</i> |
| Fri-Sat Poster 10 | Electrospray Response Factors for Protein Aggregate Quantification; Katharina Root , <i>ETH Zurich, Switzerland</i> |
| Fri-Sat Poster 11 | Measuring Protein Allostery and Cooperativity Using Collision Induced Unfolding; Jessica Rabuck-Gibbons , <i>University of Michigan</i> |
| Fri-Sat Poster 12 | Structure Function Relationships of endogenous Human Histidine Kinase Probed by Native and Top-Down MS; Clement Potel , <i>Utrecht University</i> |
| Fri-Sat Poster 13 | A Divide-and-Conquer Approach to Compute Collision Cross Sections in the Projection Approximation Method; Bela Paizs , <i>Bangor University</i> |
| Fri-Sat Poster 14 | A Hybrid Orbitrap/NEMS Instrument for Native Single Molecule Analysis; Adam Neumann , <i>Caltech</i> |
| Fri-Sat Poster 15 | New Frontiers in Lipid Binding Using Membrane Protein Nanodiscs for Native MS; Michael Marty , <i>University of Oxford</i> |
| Fri-Sat Poster 16 | Mapping Molecular interactions of ATG1 and SAGA Protein Complexes with Cross-Linking Mass Spectrometry and Electron Microscopy; Shan Lu , <i>National Institute of Biological Sciences</i> |
| Fri-Sat Poster 17 | Native Mass Spectrometry of Membrane Proteins: Elucidating Protein Stoichiometry and Lipid interactions; Idlir Liko , <i>University of Oxford</i> |
| Fri-Sat Poster 18 | Rapid Assessment of Human Amylin Aggregation and its Inhibition by Copper(II) Ions by Laser Ablation Electrospray Ionization Mass Spectrometry with Ion Mobility Separation; Hang (Amy) Li , <i>The George Washington University</i> |
| Fri-Sat Poster 19 | Protein Reaction Monitoring by Native-MS; Aneika Leney , <i>Utrecht University</i> |
| Fri-Sat Poster 20 | Using Native MS to Delineate the Structural Heterogeneity and Dynamics of Small Heat-Shock Proteins; Blagojce Jovcevski , <i>University of Wollongong</i> |
| Fri-Sat Poster 21 | Are High Charge States Destabilized by Like-Charge Repulsion or are Low Charge States Stabilized by Opposite-Charge Attraction (Salt Bridges)?; Rachel R. Ogorzalek Loo , <i>UCLA</i> |
| Fri-Sat Poster 22 | Getting Structural Information on Biomolecules with Action Excitation Energy Transfer; Nathan Hendricks , <i>UC Riverside</i> |

SATURDAY, OCTOBER 17, 2015, *continued*

Fri-Sat Poster 23	Opposite Conformational Selectivity and Conformational Effects of Epigallocatechin-3-Gallate and Dopamine Binding to α -Synuclein; Rita Grandori , <i>University of Milano-Bicocca</i>
Fri-Sat Poster 24	Separation, Detection and Collection of Non-Covalent Biospecific Lectin - Glycoprotein Complexes with a Nanoelectrospray Gas-Phase Electrophoretic Mobility Molecular Analyzer (nES GEMMA); Nicole Engel , <i>Vienna University of Technology</i>
Fri-Sat Poster 25	Comparison of Monoclonal Antibody Drug Products using Ion Mobility - Mass Spectrometry; Carly N. Ferguson , <i>US FDA - CDER - Division of Pharmaceutical Analysis</i>
Fri-Sat Poster 26	Native Mass Spectrometry for Structural Characterization of Protein-based Nanoclusters; Shu-Hui Chen , <i>National Cheng Kung University</i>
Fri-Sat Poster 27	Insights into the Structure, Dynamics and Mechanism of the Periplasmic Chaperone Skp; Antonio Calabrese , <i>University of Leeds, UK</i>
Fri-Sat Poster 28	Optimizing Intact Analysis of Cysteine-Linked Antibody-Drug Conjugates Using Native SEC-MS; Aaron O. Bailey , <i>Thermo Fisher Scientific</i>

12:00 - 1:00 pm: Asilomar Lunch (all attendees), *Crocker Dining Hall*

1:15 - 3:00 pm: **NEW ACTIVATION METHODS IN NATIVE MS**, *Chapel*
Session Chair: Ryan Julian, *UC Riverside*

There is a five-minute gap after each 30-minute talk for Q&A.

1:15 - 1:45 pm	SID of Model Systems with Known Interfaces: What Have We Learned? ; Vicki Wysocki, <i>The Ohio State University</i>
1:50 - 2:20 pm	Ultraviolet Photodissociation for Characterization of Proteins and Protein Complexes ; Jenny Brodbelt, <i>University of Texas - Austin</i>
2:25 - 2:55 pm	ECD of Native Proteins and Assemblies ; Joe Loo, <i>University of California, Los Angeles</i>

3:00 - 3:30 pm: **Coffee Break + Group Photo**

3:30 - 4:55 pm: **MACROMOLECULAR ASSEMBLIES**, *Chapel*
Session Chair: Vicki Wysocki, *The Ohio State University*

There is a five-minute gap after the 30-minute talks for Q&A and a three-minute gap after the 12-minute talk.

3:30 - 4:00 pm	Probing the Limits in High Mass Range and Resolution in Native Mass Spectrometry with Applications into Structural Virology ; Albert Heck, <i>Utrecht University</i>
4:05 - 4:35 pm	Quantifying Protein Self-Assembly ; Justin Benesch, <i>University of Oxford</i>
4:40 - 5:10 pm	New MS Techniques for the Discovery and Characterization of Protein-Carbohydrate Interactions ; John Klassen, <i>University of Alberta</i>

Hot Topic Talk selected from submitted abstract:

5:15 - 5:27 pm	Dynamics of Viral Structures - From Cell Entry to Exit ; Charlotte Uetrecht, <i>Heinrich Pette Institute/European XFEL GmbH</i>
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6:00 - 7:00 pm: Asilomar Dinner (onsite lodgers only), *Crocker Dining Hall*
If you are staying offsite, you may purchase a dinner meal ticket at the Asilomar Front Desk.

SATURDAY, OCTOBER 17, 2015, *continued*

7:15 - 9:00 pm: **MERGING NATIVE AND CROSS-LINKING MASS SPECTROMETRY**, *Chapel*

Session Chair: Nina Morgner, *Goethe-Universität Frankfurt*

There is a five-minute gap after the 30-minute talks for Q&A and a three-minute gap after the 12-minute talks.

7:15 - 7:45 pm **What You Always Wanted To Know about Chemical Cross-Linking/MS**; Andrea Sinz, *Martin-Luther University Halle-Wittenberg*

7:50 - 8:20 pm **Applications of Chemical Cross-Linking/Mass Spectrometry in Integrative Structural Biology**; Alexander Leitner, *ETH-Zurich*

Hot Topic Talk selected from submitted abstract:

8:25 - 8:37 pm **Characterization of Hydrogenase Complexes Containing Oxygen Sensitive Iron-Sulfur Clusters using Non-covalent Mass Spectrometry**; Brian Bothner, *Montana State University*

Hot Topic Talk selected from submitted abstract:

8:40 - 8:52 pm The Mystery Unfolds: Common Misfolded SOD1 Intermediates Captured with Native Mass Spectrometry; **Luke McAlary**, *University of Wollongong*

8:55 pm Welcome to this evening's reception by **Roy Martin**, *Waters Corporation*

9:00 - 10:30 pm: **INFORMAL MIXER AND FRIDAY-SATURDAY POSTERS**, *Chapel*

Special thanks to this evening's reception sponsor
WATERS CORPORATION

The Friday-Saturday Posters will be displayed from 7:00 pm, Friday – 10:30 pm, Saturday night.
Posters will be presented (attended by author) during the Saturday evening reception.

Posters 01 – 07 are presented as posters only.

Fri-Sat Poster 01 Utilising Mass Spectrometry and Fast Photochemical Oxidation to Investigate Conformational Changes of Nascent Chain Peptides and Their Associated Complexes; **Esther Martin**, *University of Leeds*

Fri-Sat Poster 02 Study of RNA Kissing Complexes and Their Interaction with Magnesium Cations by Native MS; **Clémence Rabin**, *INSERM U869 / Université de Bordeaux*

Fri-Sat Poster 03 Combination of Multiple and Sequential Tandem MS methods with Ion Mobility for Enhanced Polypeptide Sequence Information and Higher Order Protein Structural Analysis; **Deepali Rathore**, *University of Nebraska - Lincoln*

Fri-Sat Poster 04 Characterization of Non-Covalent Interaction of Therapeutic Molecules by Native MS; **Wendy Sandoval**, *Genentech*

Fri-Sat Poster 05 Lipid Transfer at ER-Plasma Membrane Contacts; **Federico Torta**, *National University of Singapore*

Fri-Sat Poster 06 Native Mass Spectrometry of Important Non-Covalent Binding Involved in Neurodegenerative Disease; **Piriya Wongkongkathep**, *UCLA*

Fri-Sat Poster 07 Characterization of Protein Complexes Generated from Solution Phase Charge Reduction and Gas Phase Charge Reduction via Ion Mobility and Surface Induced Dissociation; **Jing Yan**, *The Ohio State University*

Posters 08 – 28 are featured as Poster Highlight talks on Saturday morning.

Fri-Sat Poster 08 Investigating the Gas-Phase Conformation of Fibroblast Growth Factors 1 Upon Binding of Heparin/HS Using Traveling Wave Ion Mobility Spectrometry (TWIMS); **Yuejie Zhao**, *University of Georgia*

Fri-Sat Poster 09 Structure and Activity of the RNA Polymerase II - Capping Enzyme Complex Probed by Native Mass Spectrometry and Other Structural Biology Methods; **Michiel van de Waterbeemd**, *Utrecht University*

Fri-Sat Poster 10 Electrospray Response Factors for Protein Aggregate Quantification; **Katharina Root**, *ETH Zurich, Switzerland*

Fri-Sat Poster 11 Measuring Protein Allostery and Cooperativity Using Collision Induced Unfolding; **Jessica Rabuck-Gibbons**, *University of Michigan*

Fri-Sat Poster 12 Structure Function Relationships of endogenous Human Histidine Kinase Probed by Native and Top-Down MS; **Clement Potel**, *Utrecht University*

SATURDAY, OCTOBER 17, 2015, *continued*

- Fri-Sat Poster 13 A Divide-and-Conquer Approach to Compute Collision Cross Sections in the Projection Approximation Method; **Bela Paizs**, *Bangor University*
- Fri-Sat Poster 14 A Hybrid Orbitrap/NEMS Instrument for Native Single Molecule Analysis; **Adam Neumann**, *Caltech*
- Fri-Sat Poster 15 New Frontiers in Lipid Binding Using Membrane Protein Nanodiscs for Native MS; **Michael Marty**, *University of Oxford*
- Fri-Sat Poster 16 Mapping Molecular interactions of ATG1 and SAGA Protein Complexes with Cross-Linking Mass Spectrometry and Electron Microscopy; **Shan LU**, *National Institute of Biological Sciences*
- Fri-Sat Poster 17 Native Mass Spectrometry of Membrane Proteins: Elucidating Protein Stoichiometry and Lipid interactions; **Idlir Liko**, *University of Oxford*
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- Fri-Sat Poster 25 Comparison of Monoclonal Antibody Drug Products using Ion Mobility - Mass Spectrometry; **Carly N. Ferguson**, *US FDA - CDER - Division of Pharmaceutical Analysis*
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- Fri-Sat Poster 27 Insights into the Structure, Dynamics and Mechanism of the Periplasmic Chaperone Skp; **Antonio Calabrese**, *University of Leeds, UK*
- Fri-Sat Poster 28 Optimizing Intact Analysis of Cysteine-Linked Antibody-Drug Conjugates Using Native SEC-MS; **Aaron O. Bailey**, *Thermo Fisher Scientific*

SUNDAY, OCTOBER 18, 2015

7:30 - 9:00 am: Asilomar Breakfast (onsite lodgers only), *Crocker Dining Hall*

SUNDAY-MONDAY POSTERS

Sunday-Monday Posters on display this morning through Monday night. See complete listing on pages 11 - 12.

9:00 am - 11:00 am: **NATIVE MS IN PHARMA RESEARCH**, *Chapel*

Session Chair: Wendy Sandoval, *Genentech*

There is a five-minute gap after the 30-minute talks for Q&A and a three-minute gap after the 12-minute talk.

9:00 - 9:30 am **Native MS Methods for In-Depth mAbs and ADC Characterization**; Sarah Cianferani, *CNRS STRASBOURG*

9:35 - 10:05 am **Using Mass Spectrometry to Screen for Protein-Drug Interactions**; Rachel Garlish, *UCB London*

Hot Topic Talk selected from submitted abstract:

10:10 - 10:22 am **Heightened Characterization of a Domain Swapped Small Modular Immunopharmaceutical (SMIP) Using Native SEC/MS with an Exactive Plus EMR Orbitrap Mass Spectrometer**; Keith A. Johnson, *Pfizer*

Hot Topic Talk selected from submitted abstract:

10:25 - 10:37 am **Challenges in Data Extraction from Native Mass Spectra**; Michael Trnka, *UC San Francisco*

10:40 - 11:00 am: **COFFEE BREAK**

11:00 am - 12:10 am: **NATIVE MS AND MEMBRANE PROTEINS**, *Chapel*

Session Chair: Michael Marty, *University of Oxford*

There is a five-minute gap after each 30-minute talk for Q&A.

11:00 - 11:30 am **Membrane Proteins: Native MS, Lipid Nanodiscs, and Footprinting**; Michael Gross, *Washington University, St. Louis*

11:35 am - 12:05 pm **Dynamic Protein Structure: From Protein Disorder to Membrane Pores**; Frank Sobott, *University of Antwerp*

12:10 - 1:00 pm: Asilomar Lunch (all attendees), *Crocker Dining Hall*

1:00 - 6:00 pm: Free Afternoon

6:00 - 7:00 pm: Asilomar Dinner (onsite lodgers only), *Crocker Dining Hall*

If you are staying offsite, you may purchase a dinner meal ticket at the Asilomar Front Desk.

7:15 - 9:00 pm: **DEVELOPMENTS IN MASS ANALYZERS FOR NATIVE MS**, *Chapel*

Session Chair: Albert Heck, *Utrecht University*

There is a five-minute gap after each 30-minute talk for Q&A.

7:15 - 7:45 pm **Orbitrap Technology for Native Mass Spectrometry**; Alexander Makarov, *Thermo Scientific*

7:50 - 8:20 pm **Optimizing Q-ToF instruments for Native Mass Spectrometry**; Jan Commandeur, *MSVision*

8:25 - 8:55 pm **Characterization of Monoclonal Antibodies with Native MS Using Adapted QTOF Technology**; Ralf Hartmer, *Bruker Daltonics*

9:00 - 11:00 pm: **BONFIRE + S'MORES & DRINKS**

Beach Shelter located off the far end of Crocker Dining Hall (outside, please dress warmly!)

MONDAY, OCTOBER 19, 2015

7:30 - 9:00 am: Asilomar Breakfast (onsite lodgers only), *Crocker Dining Hall*

9:00 am - 10:45 am: **NATIVE ION-MOBILITY MS**, *Chapel*
Session Chair: Matt Bush, *University of Washington*

There is a five-minute gap after each 30-minute talk for Q&A.

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|------------------|---|
| 9:00 - 9:30 am | Exploring Protein Function Using Ion Mobility-Mass Spectrometry ; Alison Ashcroft, <i>University of Leeds</i> |
| 9:35 - 10:05 am | Collisional Unfolding of Protein Complexes: From Domain-specific Stability Measurements to High-throughput Drug Discovery ; Brandon Ruotolo, <i>University of Michigan</i> |
| 10:10 - 10:40 am | Nano ES Differential Mobility Analysis of V's (Viruses, Virus-like Particles and Vaults) ; Guenter Allmaier, <i>Vienna University of Technology</i> |

10:45 – 11:05 am: **COFFEE BREAK**

11:05 am - 12:00 pm: **POSTER HIGHLIGHT TALKS**, *Chapel*
Presiding: Lars Konermann, *University of Western Ontario*

Poster Highlight talks will be 2½ minutes max each.

After 2½ minutes presenters will "face the music" if they have not completed their presentation.

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|-------------------|--|
| Sun-Mon Poster 08 | Top-Down MS Analysis of Industrial Enzymes; Ioana Mihaela Barbu , <i>DSM Biotechnology Center</i> |
| Sun-Mon Poster 09 | Reconstruction of an Ancient Enzyme Complex; Florian Busch , <i>The Ohio State University</i> |
| Sun-Mon Poster 10 | Development of 193nm UVPD for Top-Down Native-MS Experiments with a Focus on Oncogenic (G12C) KRas and Its Enzymatic Activity; Michael Cammarata , <i>University of Texas at Austin</i> |
| Sun-Mon Poster 11 | Action-FRET: Probing the Structure of Biomolecules in the Gas Phase by Forster Resonance Energy Transfer Detected by Mass spectrometry Only; Steven Daly , <i>Institut Lumière Matière, Claude Bernard Université Lyon 1</i> |
| Sun-Mon Poster 12 | Tandem Native Mass-Spectrometry on Antibody-Drug Conjugates and Submillion Da Antibody-Antigen Protein Assemblies on an Orbitrap EMR Equipped with a High-Mass Quadrupole Mass Selector; Andrey Dyachenko , <i>Utrecht University</i> |
| Sun-Mon Poster 13 | High-Resolution Orbitrap Mass Spectrometry of Lipids, Peptides and Drugs Bound to Membrane Proteins; Joseph Gault , <i>University of Oxford</i> |
| Sun-Mon Poster 14 | A Native Mass Spectrometric Platform to Reveal Lipid Mediated Oligomerisation of Membrane Proteins in Atomistic Detail; Kallol Gupta , <i>University of Oxford</i> |
| Sun-Mon Poster 15 | Probing the Mechanism of Homotropic Allostery in TRAP using Native Mass Spectrometry; Melody Holmquist , <i>The Ohio State University</i> |
| Sun-Mon Poster 16 | Cation to Anion Proton Transfer Reaction of Protein Complexes: Analysis of Mixtures and Effects of Charge on Structure; Ken Laszlo , <i>University of Washington</i> |
| Sun-Mon Poster 17 | New Insights into the Use of ETD and Ion Mobility for Structural Analysis of Proteins and Complexes; Frederik Lermite , <i>University of Antwerp</i> |
| Sun-Mon Poster 18 | Quantitative Analysis of Noncovalent Protein Complex Through Native Mass Spectrometry; Wenjing Li , <i>University of Maryland Baltimore</i> |
| Sun-Mon Poster 19 | Assessment and Optimization of Instrument Parameters for Gas Phase Unfolding of Membrane Protein Lipid Complexes; Yang Liu , <i>Texas A&M Health Science Center</i> |

MONDAY, OCTOBER 19, 2015, *continued*

- Sun-Mon Poster 20 Native Mass Spectrometry Elucidates a Novel Mechano-Enzymatic Cleavage Mechanism Underlying Transthyretin Amyloidogenesis; **Julien Marcoux**, *CNRS - Institute of Pharmacology and Structural Biology, Toulouse, France*
- Sun-Mon Poster 21 An Optimized Workflow for Native Mass Spectrometry Analysis of Affinity Isolated Endogenous Protein Assemblies; **Paul Dominic Olinares**, *The Rockefeller University*
- Sun-Mon Poster 22 Tandem Mass-Spectrometry of Chemically-Modified Protein Complexes. New Strategies for Top-down Protein Sequencing and Structural Proteomics.; **Daniel Polasky**, *University of Michigan*
- Sun-Mon Poster 23 Fourier Deconvolution for Mass Spectra of Large Assemblies with Repeated Subunits; **James S. Prell**, *Department of Chemistry and Biochemistry, University of Oregon*
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12:00 - 1:00 pm: Asilomar Lunch (all attendees), *Crocker Dining Hall*

1:15 - 2:40 pm: **DETECTION METHODS IN NATIVE MS**, *Chapel*

Session Chair: Renato Zenobi, *ETH-Zurich*

There is a five-minute gap after the 30-minute talks for Q&A and a three-minute gap after the 12-minute talk.

1:15 - 1:45 pm **Nanomechanical MS: Toward Native Single-Molecule Analysis**; Michael Roukes, *California Institute of Technology*

1:50 - 2:20 pm **Charge Detection Mass Spectrometry**; Martin Jarrold, *Indiana University*

Hot Topic Talk selected from submitted abstract:

2:25 - 2:37 pm **Electrically Biased Pixelated Detector Allows Rapid and Sensitive Detection of Non-covalent Biomolecular Complexes During Native Electrospray Mass Spectrometry**; Tiffany Porta, *Maastricht MultiModal Molecular Imaging (M4I) institute*

2:40 - 3:00 pm: **COFFEE BREAK**

3:00 - 4:05 pm: **PROTEIN STRUCTURE AND SEPARATIONS TOOLS FOR NATIVE MS**, *Chapel*

Session Chair: Lingjun Li, *University of Wisconsin-Madison*

There is a five-minute gap after the 30-minute talk for Q&A and a three-minute gap after the 12-minute talks.

3:00 - 3:30 pm **Enabling a Range of Dissociation Tools for Structural Biology on an Ion Mobility Enabled Q-TOF: ETD, SID and UVPD**; Jeff Brown, *Waters Corporation*

Hot Topic Talk selected from submitted abstract:

3:35 - 3:47 pm **Native Mass Spectrometry of Proteins by Capillary Electrophoresis Ion Mobility MS**; Caroline Chu, *Agilent Technologies*

Hot Topic Talk selected from submitted abstract:

3:50 - 4:02 pm **Novel Mass Spectrometry-Based Approaches to Characterization of Highly Heterogeneous Heparin-Protein Complexes**; Yunlong Zhao, *University of Massachusetts at Amherst*

MONDAY, OCTOBER 19, 2015, *continued*

6:00 - 7:15 pm: **BANQUET DINNER**

*Look for signs guiding you to special private room entrance at Crocker Dining Hall.
Bring your ASMS banquet ticket! If you need a ticket, please see Jennifer in rear of Chapel.*

7:15 - 8:20 pm: **AFTER-DINNER TALK, Chapel**

- 7:15 - 8:00 pm **Fundamentals of Native ESI for Macromolecules Then and Now;** Brian Chait, *Rockefeller University*
- 8:10 - 8:20 pm Closing Remarks

8:20 - 10:00 pm: **DESSERT AND SUNDAY-MONDAY POSTERS, Chapel**

The Sunday-Monday Posters will be displayed from 9:00 am, Sunday – 10:00 pm, Monday night. Posters will be presented (attended by author) during the Monday evening reception.

Posters 01 – 07 are presented as posters only.

- Sun-Mon Poster 01 Non-Native Superconducting Tunnel Junction Mass Spectrometry for the Investigation of Biomacromolecular Stability - What Have We Learned?; **Mark Bier**, *Carnegie Mellon University*
- Sun-Mon Poster 02 Analysis of Native - Like Ions using Structures for Lossless Ion Manipulation; **Rachel Eaton**, *University of Washington*
- Sun-Mon Poster 03 Ion/Ion Reactions for the Modification of Gas Phase Bio-Ions; **Joshua Gilbert**, *The Ohio State University*
- Sun-Mon Poster 04 Electrospray Ionization Differential Mobility Analysis (ES-DMA) of Large Non-Covalent Complexes Using Automated Sample Preparation; **Patrick Hutchins**, *TSI Inc.*
- Sun-Mon Poster 05 Characterization of Membrane Proteins and their Complexes by High-Mass Matrix-Assisted Laser Desorption Ionization-Mass Spectrometry; **Martin Köhler**, *ETH Zürich*
- Sun-Mon Poster 06 Probing the D-Amino Acid-Containing Peptide Oligomers and the Interaction with Receptors by Ion Mobility Spectrometry and Native Mass Spectrometry; **Chenxi Jia**, *University of Wisconsin-Madison*
- Sun-Mon Poster 07 Characterization of an Oxygen Sensitive Nitrogenase from of *Azotobacter vinelandii*; **Monika Lukaszewska**, *Montana State University*

Posters 08 – 27 are featured as Poster Highlight talks on Monday morning.

- Sun-Mon Poster 08 Top-Down MS Analysis of Industrial Enzymes; **Ioana Mihaela Barbu**, *DSM Biotechnology Center*
- Sun-Mon Poster 09 Reconstruction of an Ancient Enzyme Complex; **Florian Busch**, *The Ohio State University*
- Sun-Mon Poster 10 Development of 193nm UVPD for Top-Down Native-MS Experiments with a Focus on Oncogenic (G12C) KRas and Its Enzymatic Activity; **Michael Cammarata**, *University of Texas at Austin*
- Sun-Mon Poster 11 Action-FRET: Probing the Structure of Biomolecules in the Gas Phase by Forster Resonance Energy Transfer Detected by Mass spectrometry Only; **Steven Daly**, *Institut Lumière Matière, Claude Bernard Université Lyon 1*
- Sun-Mon Poster 12 Tandem Native Mass-Spectrometry on Antibody-Drug Conjugates and Submillion Da Antibody-Antigen Protein Assemblies on an Orbitrap EMR Equipped with a High-Mass Quadrupole Mass Selector; **Andrey Dyachenko**, *Utrecht University*
- Sun-Mon Poster 13 High-Resolution Orbitrap Mass Spectrometry of Lipids, Peptides and Drugs Bound to Membrane Proteins; **Joseph Gault**, *University of Oxford*

MONDAY, OCTOBER 19, 2015, *continued*

- Sun-Mon Poster 14 A Native Mass Spectrometric Platform to Reveal Lipid Mediated Oligomerisation of Membrane Proteins in Atomistic Detail; **Kallol Gupta**, *University of Oxford*
- Sun-Mon Poster 15 Probing the Mechanism of Homotropic Allostery in TRAP using Native Mass Spectrometry; **Melody Holmquist**, *Ohio State University*
- Sun-Mon Poster 16 Cation to Anion Proton Transfer Reaction of Protein Complexes: Analysis of Mixtures and Effects of Charge on Structure; **Ken Laszlo**, *University of Washington*
- Sun-Mon Poster 17 New Insights into the Use of ETD and Ion Mobility for Structural Analysis of Proteins and Complexes; **Frederik Lermyte**, *University of Antwerp*
- Sun-Mon Poster 18 Quantitative Analysis of Noncovalent Protein Complex Through Native Mass Spectrometry; **Wenjing Li**, *University of Maryland Baltimore*
- Sun-Mon Poster 19 Assessment and Optimization of Instrument Parameters for Gas Phase Unfolding of Membrane Protein Lipid Complexes; **Yang Liu**, *Texas A&M Health Science Center*
- Sun-Mon Poster 20 Native Mass Spectrometry Elucidates a Novel Mechano-Enzymatic Cleavage Mechanism Underlying Transthyretin Amyloidogenesis; **Julien Marcoux**, *CNRS - Institute of Pharmacology and Structural Biology, Toulouse, France*
- Sun-Mon Poster 21 An Optimized Workflow for Native Mass Spectrometry Analysis of Affinity Isolated Endogenous Protein Assemblies; **Paul Dominic Olinares**, *The Rockefeller University*
- Sun-Mon Poster 22 Tandem Mass-Spectrometry of Chemically-Modified Protein Complexes. New Strategies for Top-down Protein Sequencing and Structural Proteomics.; **Daniel Polasky**, *University of Michigan*
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TUESDAY, OCTOBER 20, 2015

7:30 - 9:00 am: Asilomar Breakfast, <i>Crocker Dining Hall</i>
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Departures at Leisure