

# Meeting Report MSB2013

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From March 10-14, the 29<sup>th</sup> International Symposium on MicroScale Bioseparations ([MSB2013](#)) took place at the University of Virginia, Charlottesville.

The MSB-series was first established in 1989 in Boston by Professor Barry Karger (Barnett Institute at Northeastern University, Boston) as the symposium series on High Performance Capillary Electrophoresis (HPCE). The symposium has been very successful with growing interest in CE in the 1990ties and the beginning of the last decade. Despite the emphasis change in 2005 on the broader field of electrical and pressure driven micro-scale separations for bio-analysis, participation in the symposium had been declining especially with the US issues.

After the MSB2012 symposium in Geneva, Switzerland, a new strategic planning committee was created with an objective of rejuvenating this symposium. In a series of telephone conferences and face-to-face meetings during other conferences, the new committee decided to reshape the format of the MSB series. Prof. James Landers (University of Virginia) and Dr. Jeff Chapman (Beckman Coulter Inc.) were given the charter to implement the new format for the 2013 symposium. In a recent interview in the Analytical Scientist, James and Jeff have explained their new vision and the new formula for the conference (<http://www.theanalyticalscientist.com/issues/0213/305>).

The main changes in the conference format are:

- Expand the community – by having 70% of the symposium’s papers populated from submitted abstracts. A double blind review of submitted abstracts was used to ensure diversity. In addition, to maintain quality and novelty an extended two-page abstract is required. Reviewer scores provide a rank for selection for oral presentation.
- To encourage presentation of unpublished work - confidentiality provisions were incorporated. The conference has to provide a platform for sharing unpublished results with one’s peers in the session. Participants are required to sign a declaration to comply with confidentiality of the information provided. Abstracts are not published in the symposium book or on the web, and pictures and recording of scientific content is prohibited.
- Expanded discussion - enforcing the allocation of 1/3 of the time of a session slot for discussion through rigorous time management. Session chairs are responsible to stimulate discussion supported by thought leaders in the session topic.
- Session chairs have a decisive role in shaping their session. They are responsible to invite a scientist for the keynote presentation opening their particular session and for review and filling the session with contributed submissions for oral presentation (double blind!).
- Leave the fancy but expensive hotel symposium venues for an academic environment fostering a stimulating atmosphere for discussion. Beside the oral and poster program, all services like

workshops & social events to be included in the registration fee. Science Cafes to engage instrument vendors to shape and deliver their content to participants while serving lunch. No formal exhibition of instruments, accessories, software and supplies should be organized.

- The series will continue to include the Arnold O. Beckman Medal for “Outstanding Achievements in the Field of Electro-driven Separation Science” honoring lifelong contributions of a scientist to the MSB main motif.

## **Did the new formula work for MSB2013?**

In my view it certainly did. Many Ph.D. and post-doc students were among the oral presenters. This appeared to be a logical consequence of the double blind review. The message to everybody is: “Prepare a good abstract and you have a good chance to become an oral presenter”. Selection of submissions for oral presentation is not by name or reputation but by quality of abstract content.

Although it was intended that presenters shared their unpublished results, which should become the basis for discussions, it appears that this format change will need to evolve over time. Rather than a “robust discussion amongst peers” as James Landers and Jeff Chapman have hoped for, the result was more of an extended Q&A with the presenter after his/her talk. But this time was highly appreciated by the attendees and there was never silence in the room after the speaker finished.

The shaping of the session by the chair person worked out nicely. Leaders in the particular field of the session topics opened a session with a 20 min. talk followed by 10 minutes of discussion. Contributed orals 13 minutes long with 7 minutes discussion followed seamlessly the session theme.

The historic ground of University of Virginia, founded by Thomas Jefferson, has been an impressive and stimulating site for conference. As the vice-dean of the university mentioned in his opening remarks, for sure Thomas Jefferson would have found interest in micro-scale bioseparations.

## **Symposium program**

The program consisted of 20 sessions spanning 95 oral presentations, 6 plenary lectures, 3 forum discussions, 4 workshops on Sunday, and 5 Science Cafes. The oral program was opened on Sunday with the Founders Lecture by Prof. Barry Karger, Barnett Institute in Boston who gave an historic account and perspective on micro-scale separations science. Barry was followed by Prof. Bob Austin of Princeton University.

Monday morning saw the award ceremony for this year’s recipient of the Arnold O. Beckman award, Prof. Stellan Hjertén of Uppsala University in Sweden. Like no-one else Stellan has shaped the field of electrophoresis and capillary electrophoresis with his creative ideas, understanding of the fundamentals electrophoresis and their application to the isolation, characterization and quantitation of biological molecules. At the age of 85 he is still driven by his curiosity and need to understand the phenomena of life leading to a new interaction theory for hydrophilic polymers. By all means Stellan Hjertén is a worthy recipient of the Arnold O. Beckman award.

Other plenary lectures were delivered by Prof. John Yates, Scripps Research Institute, La Jolla, and Prof. Juan Santiago of Stanford University. Prof. James Jorgenson, who can be regarded as one of the inventors of modern capillary zone electrophoresis, explained in his plenary lecture how he was lured away from CE to HPLC since he regards the limited sample capacity of CE, the modulation of electrophoretic separation by sample composition and by uncontrollable EOF, the limited peak capacity (despite higher efficiency of CE) and the bad fit to MS (electrolyte compliance, mismatch of currents) as reasons to prefer HPLC. A point of view which clearly led to vigorous and robust discussion among participants as the conference chairs have hoped for.

The twenty topics were arranged in two parallel sessions and are given below.

<b>Session Topic</b>	<b>Session Chair</b>
Advanced Instrumentation	Jörg Peter Kutter
Affinity CE	Sergey Krylov
Biologics	Amy Guo
Carbohydrates	Lisa Holland
Chirality	Bezhan Chankvetadze
Food & Health	Norberto Guzman
From Bench to Bedside	Amy Herr
Glycomics	András Guttman
Human Forensic DNA Analysis	Joan Bienvenue
Hyphenated Techniques	Gerard Rozing
Integrated Microsystems	Robert Kennedy
Late Breaking Developments	Frantisek Svec
Metabolomics	Oleg Mayboroda
Micro/Nano Sample Preparation	Michael Roper
Microfluidic Control	Michael Bowser
Nanoparticles	Michael Lämmerhofer
Nucleic Acids	Linda B. McGown
Proteomics I	Herbert Lindner
Proteomics II	Ziad El Rassi
Separations in Forensic Science	Joan Bienvenue

The “Separations in Forensic Science” session was added as a Special One-day Symposium in a third parallel session on Wednesday. This full-day session leveraged the proximity of the MSB2013 venue to Washington DC, and paired the 29th International Symposium with the 29th anniversary of the generation of the RFLP (restriction digestion and separation of DNA fragments) by Prof. Alec Jeffreys; The session was chaired and arranged by Dr. Joan Bienvenue. Joan drew expertise from some of the world’s most renowned forensic organizations allowing for a superb series of presentations by an assembled all-star cast that represented the state-of-the-art in this field

The workshop program covered,

- Laboratory short course on Paper Based Analytical Devices, instructed by Dr. Chuck Henry (Colorado State University).
- Electrokinetics for Sample Preparation in Microfluidic Systems chaired by Professors Michael Breadmore (University of Tasmania) and Prof. Nathan Swami (University of Virginia)
- Electrochemical Detection for Capillary Microchip Electrophoresis hosted by Prof. Jill Venton (University of Virginia)
- Entrepreneurship and Innovation in an Academic Setting by Mark Crowell, Executive Director for Innovation at the University of Virginia.

The workshop program was included in the registration fee and found very well attendance. Especially the laboratory short course was a new and unique idea an outlet for creativity of the participants illustrated by the smiles on the delegates' faces and the microfluidic devices they prepared

The five science cafes were very well received. The café sponsors, Agilent Technologies, Beckman-Coulter, Eksigent Technologies., Life Technologies Corporation and Dr. Norberto Guzman of Princeton Biochemicals enjoyed excellent attendance and delivered their specific contents to the attendees.

There were three poster sessions as well as three panel discussions scheduled. The poster sessions were capped off with an award given to the top three posters which included a lecture that was given during the symposium finale. Congratulations to John McLean - Vanderbilt University, Lewis Marshall – Stanford University and Elena Dominguez Vega – Utrecht University for their award winning presentations.

The overall program was rounded off by an excellent reception with live jazz music on Sunday, a reception in the Fralin Museum of Art on Monday, a Gala Banquet with live Blue Grass music in the Alumni Hall on Wednesday and a closing lunch buffet on Thursday (all included in the registration fee).

The weather was quite enjoyable most of the time which lured some of the participants out to explore the historic “grounds” of the University of Virginia and/or try to answer the questions of a quiz about UVa arranged by the organizers.

A copy of the final program may be obtained on the symposium website at <http://www.msb2013.net>.

## **Statistics & Venue**

Slightly over 200 attendees coming from 22 countries were registered. Although this was below the original target, the meeting had enough critical mass to ensure diversity yet small enough to allow for more in depth discussion, creating a feeling of community. 67% of the attendees came from the US. Students (graduates/post-docs) represented 30% of attendees. 22% of the oral presentations were delivered by students.

The organizers received 29 applications for travel grant and have been able to acquire funding for 19 students.

The Symposium received sponsorship from Agilent Technologies, Beckman Coulter Inc, LabSmith, Inc., NanoTemper Technologies GmbH, Promega, Thermo Scientific Dionex, and WynSep. In addition, CASSS and several University of Virginia Offices and Departments supported the symposium as well as Wiley as a media sponsor.

The symposium took place in the Newcomb Hall of the University, which provided excellent facilities for a conference of this size. The historic "Lawn" and associated parks provided a pleasant walk for many in the close by hotels every day.

### **Final remarks**

The crucial question will be whether the MSB series will pick-up momentum after the reformulation of the format. The MSB strategic planning committee feels very strongly the changes chosen will be an excellent pathway for the next MSB symposium chairs. A questionnaire will be delivered to all participants very soon to find out whether the committees impression is confirmed. To what extend these changes will become visible in the program of the next [MSB symposium](#), Pécs, Hungary, 27 April - 1 May, 2014 remains in the responsibility of the chair persons, Prof. Ferenc Kilár and Prof. András Guttman.

The MSB2013 chairs James Landers and Jeff Chapman need to be complimented for their vision, courage and confidence to make this MSB issue an effective meeting by creating a substantially different format, thereby giving the series a new face. The symposium was meticulously planned with a lot of engagement of the Landers lab graduate students and staff. At any moment the attendees and speakers could turn to Mrs. Pat White and her volunteers for assistance.

All this combined, revitalized MSB2013 and made it a very memorable event to put on everyone's agenda in the future years.

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Gerard Rozing

Member of the MSB Strategic Planning Committee

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