

Program Odor Spaces

Tuesday, September 3, 2013

Evening Informal get-together

Wednesday, September 4, 2013

08:00 - 09:00 Registration

AUD 09:00 - 09:15 Opening & Key Instructions – Day 1

Perspective I: From Chemical to Perceptual space

AUD 09:15 - 10:00 **Discrete Mathematic Analysis of the Dravnieks and Flavornet data bases**

Terry Acree, Cornell University, New York, USA

AUD 10:00 - 11:00 Impulse Talks Session 1

In Search of the Structure of Human Olfactory Space

Alexei Koulakov, Cold Spring Harbor Laboratory, New York, USA

Predicting Odor Perceptual Similarity from Odor Structure

Kobi Snitz, Weizmann Institute, Rehovot, Israel

Learning Olfactory Codes using Matrix Factorization on 2DG Uptake Patterns from Rats

Amir Madany, University of Lübeck, Germany

POS 11:00 - 11:15 Coffee Break

AUD 11:15 - 11:45 Initial Focus Group Kick-off

SRS 11:45 - 12:45 Focus Group Session

FS 12:45 - 14:00 Lunch Break

AUD 14:00 - 14:45 **Vibrational Olfaction in Flies and Humans**

Luca Turin, BSRC A. Fleming, Vari, Greece

AUD 14:45 - 15:15 Focus Groups Highlights

- POS 15:15 - 16:15 Poster Break (with Coffee)
- AUD 16:15 - 17:15 Impulse Talks Session 2
Odor Space as Receptor Space
 Sigrun Korsching, University at Cologne, Germany
On the Age-related Loss of Smell Function
 Thomas Hummel, TU Dresden, Germany
**Benchmarking Physicochemical vs. Vibrational Descriptors
 in Predicting Odor Receptor Responses**
 Michael Schmuker, FU Berlin, Germany
- AUD 17:15 - 18:00 Summary discussion
- FS 18:00 - 20:00 Dinner

Thursday, September 5, 2013

- AUD 08:50 - 09:00 Announcements – Day 2 aims
Perspective II: From Chemical to Sensory space
- AUD 09:00 - 09:45 **Pharmacology of Fragrance: Odors and GPCRs**
 Stuart Firestein, Columbia University, New York, USA
- AUD 09:45 - 11:05 Impulse Talks Session 3
Human Nose on a Plate
 Joel Mainland, Monell Chemical Senses Center, PA, USA
**The Olfactory Receptor Database: Web-based resources for
 the Genomics, Proteomics and Function of Olfactory
 Receptors**
 Chiquito J. Crasto, UA Birmingham, AL, USA
**Extracting Concentration-invariant Odour Subspaces
 through Competitive Receptor-Ligand Interactions**
 Tim C. Pearce, University of Leicester, Leicester UK
Single Scale for Odor Intensity in Rodent Olfaction
 Yevgeniy Sirotin, Rockefeller University, New York, USA
- POS 11:05 - 11:30 Coffee Break

SRS 11:30 - 12:45 Focus Group Work

FS 12:45 - 14:00 Lunch Break

Perspective III: From Sensory to Perceptual Space

AUD 14:00 - 14:45 **A Metric Approach to Olfactory Space**
Noam Sobel, Weizmann Institute, Rehovot, Israel

POS 15:00 - 15:15 Coffee Break

AUD 15:15 - 16:15 Impulse Talks Session 4
Multiple Perceptible Signals from a Single Olfactory Glomerulus
Dmitry Rinberg, New York University, NY, USA
Correlated Glomerular Convergence and Latency Coding of Odors in Mitral Cells
Detlev Schild, University Göttingen, Germany
Mapping Odorant Receptors in Neural Space
Thomas C. Bozza, Northwestern University, Evanston, IL, US

AUD 16:15 - 17:00 Summary Discussion

SRS 17:00 - 18:00 Focus Group Work

FS 18:15 - 18:45 **(Dinner lecture) The Tyranny of the Use of Homologous Series of Chemical Odorants in Olfactory Research**
James M. Bower, UTHSC San Antonio, TX, USA

FS 18:00 - 20:00 Dinner

CITY 20:00 - 21:30 *Nightwatch-Tour through Downtown Hannover*

Friday, September 6, 2013

08:50 - 09:00 Announcements – Day 3 Aims

Perspective IV: From Biology to Machine Olfaction

AUD 09:00 - 09:45 **Artificial Receptors for Artificial Olfaction**
Corrado Di Natale, University of Rome, Italy

- AUD 09:45 - 11:05 Impulse Talks Session 5
A Spatiotemporal Coding Mechanism for Background Independent Recognition of Odors
 Barani Raman, Washington University, MO, USA
Feature Selection in Enose Applications
 Thomas Nowotny, University of Sussex, Brighton, UK
On the Similarities of the Insect Brain and Pattern Recognition Algorithms
 Ramon Huerta, UC San Diego La Jolla, CA, USA
Is CYBERNOSE[®] an Instrument for Measuring Odor Space?
 Stephen Trowell, CSIRO Ecosystem Sciences, Canberra, Australia

POS 11:05 - 11:30 Coffee Break

SRS 11:30 - 12:45 Focus group work

FS 12:45 - 14:00 Lunch Break

Perspective V: From Circuits to Behavior

- AUD 14:00 - 15:20 Impulse Talk Session 6
N.n.
 Venkatesh Murthy
Coding of Odor Valence and Intensity in the *Drosophila* Olfactory Circuit
 Silke Sachse, MPI for Chemical Ecology, Jena, Germany
Brain Activation via Olfaction
 Michael Leon, University of California Irvine, USA
Underlying Dimensions in the Perceptual Space of Perfumery Odors
 Manuel Zarzo, Universidad Politécnic de Valencia, Spain
- POS 15:20 - 16:00 Poster Session (with Coffee)
- AUD 16:00 - 16:30 **The Waltz of Volatile Molecules**
 Christophe Laudamiel, DreamAir LLC, New York, USA
- SRS 16:30 - 17:30 Focus group work
- SRS 17:30 - 18:00 Preparation of Final FG Presentation

- FS 18:00 - 20:00 Dinner
20:00 - 21:30 *Guided Tour through the Palace Museum*

Saturday, September 7, 2013

- AUD 08:50 - 09:00 Summary of Day 3 - Announcements
Perspective VI: From Ecological to Physical Space
- AUD 09:00 - 09:45 **“What” and “where” in sensory space: parallels between olfactory and visual perception.**
Nicholas Strausfeld, University of Arizona, Tucson, USA
- AUD 09:45 - 11:05 Impulse Talks Session 7
The Database of Odor Responses (DoOR) - Mapping the Fruit Fly's Odor Space
Martin Strauch, University of Konstanz, Germany
Odor Objects in a Complex World
Shannon B. Olsson, MPI for Chemical Ecology, Jena Germany
Fast as Smell: The Need for Speed in Detection and Discrimination of Odors
Brian H. Smith, Arizona State University, Tempe, USA
Multiple Roles of Inhibition in the Olfactory System
Maxim Bazhenov, UC Riverside, CA, USA
- POS 11:05 - 11:30 Coffee Break
- AUD 11:30 - 12:45 Presentation of Focus Group Results
- FS 12:45 - 14:00 Lunch Break
- AUD 14:00 - 14:40 Impulse Talks Session 8
How does Odor-Specificity emerge in the Olfactory System?
Ron A. Jortner, MPI of Neurobiology, Martinsried, Germany
Neural correlates of a search strategy
Dominique Martinez, LORIA, CNRS, Nancy, France

- POS 14:40 - 15:10 Final Coffee Break
- AUD 15:10 – 15:50 **Moth and Mosquito Orientation to Odor Sources: How the Structure of the Odor Plume Modulates Navigation**
Ring T. Cardé, UC Riverside, CA, USA
Processing a Dynamic Odor in a Noisy Chemical Environment
Jeffrey A. Riffell, University of Washington, Seattle, WA, USA
- AUD 16:00 - 17:00 Summary Discussion, Feedback & Farewell

Legend for the Rooms:

- SRS Seminar Rooms 5+6, Ground floor
AUD Auditorium (Lower Basement)
POS Poster Walls in front of the seminar rooms
FS Festsaal (Banquet Hall)

Poster presentations (alphabetical order)

- 1. Large-scale analysis of perceptual odor data**
Benjamin Auffarth, Foundation of Research and Technology-Hellas (FORTH), Vassilika Vouton, Greece
- 2. Pheromone-plant interaction in *Heliothis virescens***
*Elisa Badeke*¹, Pablo Pregitzer², Bill S. Hansson¹, Jürgen Krieger², Silke Sachse¹
¹ MPI for Chemical Ecology, Jena, Germany, ² University Hohenheim, Stuttgart, Germany
- 3. Categorical, Low-Dimensional Decomposition of Human Odor Space with Non-Negative Matrix Factorization**
*J. B. Castro*¹, *S. P. Quinn*², *A. Ramanathan*³, *C. S. Chennubhotla*²
¹Bates College, Lewiston, ME, USA, ²University of Pittsburgh, PA, USA, ³Oak Ridge National Laboratory, TN, USA
- 4. Understanding olfactory information processing by combining a physiologically realistic model of the olfactory bulb and olfactory cortex.**
Simon O'Connor, Bio computation Group, University of Hertfordshire, UK
- 5. A comparative analysis of different coding strategies on NMF-based codebooks from rat bulber activity patterns.**
Johanna Degen, Christiane Wegner, Amir Madany Mamlouk, University of Luebeck, Germany
- 6. A psychophysical study for evaluating a model of human olfaction**
Lisa Kroll, Christiane Wegner, Amir Madany Mamlouk, University of Luebeck, Germany
- 7. Understanding the Odour Network**
Ritesh Kumar^{1,2}, *Rishemjit Kaur*^{1,2}, *Amol P Bhondekar*^{1,2}, *Pawan Kapur*^{1,2}
¹ CSIR- Central Scientific Instruments Organisation, Chandigarh, India
² Academy of Scientific and Innovative Research, New Delhi, India
- 8. Associative and non-associative learning improves perception of the relevant components in odor mixtures**
Fernando Locatelli, Universidad de Buenos Aires. IFIBYNE- CONICET. Argentina
- 9. Odor generalization according to odorants' vibrational spectra**
Klio Maniati, BSRC Alexander Fleming, Vari, Greece
- 10. Coding in the Olfactory System: Linking Realistic and Abstract Models**
Christoph Metzner, University of Luebeck, Germany
- 11. Scents and Scentsitivity - what scents (may) spell out and ways to read it**
Carsten Muller, Cardiff University, UK
- 12. Stimulus-onset asynchrony can aid odor segregation**
Thomas Nowotny, C. Giovanni Galizia, Paul Szyszka
University of Sussex, Brighton, UK
- 13. Modeling odor responses of Projection Neurons and Kenyon Cells in insects**
Paul Pawletta, Amir Madany Mamlouk, University of Luebeck, Germany

14. **Rapid Processing of Chemosensor Transients in a Neuromorphic Implementation of the Insect Macroglomerular Complex**
Tim C. Pearce¹, Salah Karout¹, Zoltan Rácz², Alberto Capurro¹, Julian W. Gardner² and Marina Cole²
¹ Centre for Bioengineering, Department of Engineering, University of Leicester, UK, ² Microsensors and Bioelectronics Laboratory, School of Engineering, University of Warwick, UK.
15. **Mimicking biological principles in artificial olfactory system**
Baranidharan Raman, Washington University, St. Louis, MO, USA.
16. **Phosphodiesterase 1C: Leveling the playing field for olfactory receptor neuron sensitivity and targeting?**
Johannes Reisert, Monell Chemical Senses Center, Philadelphia, USA
17. **ABCC11 – as key anti-odor target**
T. Baumann, Z. Jovanovic, B. Enthaler, T. Schmidt-Rose, H. Max, A. Martin, Lara Terstegen, D. Schweiger, Beiersdorf AG R&D, Hamburg, Germany
18. **Individual Olfactory fingerprints: From Mapping Odors in People-Space to Mapping People in Odor-Space**
Lavi Secundo, Kobi Snitz, Liron Pinchover, Dana Bar-Zvi, Noam Sobel Weizmann Institute of Science, Rehovot, Israel
19. **Rapid adaptation reduces perceived odor intensity in rodents**
Yevgeniy Sirotnin, Rockefeller University, New York, NY, USA.
20. **Dynamics of reward-mediated neural plasticity in honey bee antennal lobe glomeruli.**
Brian H. Smith, Arizona State University, Tempe, USA
21. **Topographic embedding of MOR18-2 in the mouse olfactory bulb**
J. Soelter¹, J. Schumacher², H. Spors², M. Schmucker^{1,3};
¹FU Berlin, Germany, ² MPI of Biophysics, Frankfurt, Germany, ³Bernstein Center for Computational Neuroscience, Berlin, Germany
22. **The role of a single olfactory receptor in odorant perception: relating receptor space to perceptual space**
Trimmer C, Willer JR, Katsanis N, Matsunami H, Mainland JD
 Monell Chemical Senses Center, Philadelphia PA, USA
23. **Analysis of the coding scheme in the olfactory bulb with NMF**
Christiane Wegner, Amir Madany Mamlouk, University of Lübeck, Germany
24. **How animals negotiate odor space in evolutionary time and in real-time**
Tristram D. Wyatt, University of Oxford, Oxford, UK
25. **A Modelling Framework for the Olfactory System of the Honeybee using GeNN (GPU enhanced Neuronal Network simulation environment)**
Esin Yavuz, Thomas Nowotny, University of Sussex, Brighton, UK