International Society for
Neuroethology

10th International Congress of Neuroethology

Aug 5 – 10, 2012
University of Maryland
College Park

PROGRAM BOOK

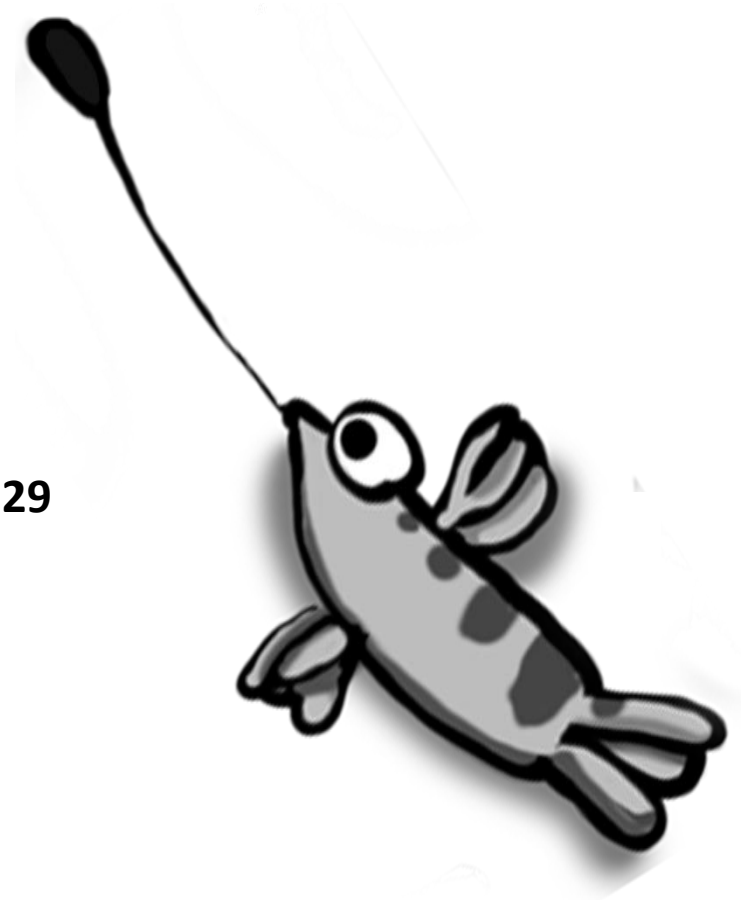
www.icn2012.umd.edu

UNIVERSITY OF MARYLAND

Time	MONDAY, August 6	TUESDAY, August 7	WEDNESDAY, August 8	THURSDAY, August 9	FRIDAY, August 10
8:20 – 8:30	**Welcome:** Dean Jayanth Banavar *College of Computer, Mathematical, and Natural Sciences*				
8:30 – 9:30	**Plenary 1:** Arthur N. Popper	**Plenary 3:** Ole Kiehn	**Plenary 5:** Constance Scharff	**Plenary 6:** Elke K. Buschbeck	**Plenary 7:** Toshiya Matsushima
9:30 – 10:00	**Coffee Break**	**Coffee Break**	**Coffee Break**	**Coffee Break**	**Coffee Break**
10:00 – 12:00	**Special Symposium:** *Roots, Progress, and Prospects* • William B. Kristan • Darcy B. Kelley • Ronald R. Hoy • Catherine E. Carr	**Special Symposium:** *Young Investigators* • Antoine Wystrach • Basil el Jundi • Michael Yartsev • Lauren O'Connell	Concurrent Invited Symposia **Symposium 4:** *Variability in intrinsic properties of neurons and their synaptic connections* **Symposium 5:** *Multiple cues for orientation* **Symposium 6:** *No oxygen, no problem! The neuroethology of hypoxia-tolerant mammals*	Concurrent Invited Symposia **Symposium 7:** *Activity generated modulation of motion vision responses* **Symposium 8:** *Automated social behavior analysis* **Symposium 9:** *Invertebrate models for locomotion research*	Concurrent Invited Symposia **Symposium 10:** *Nociceptors in the real world* **Symposium 11:** *Polarization vision: New discoveries of natural behaviors* Concurrent Participant Symp. **Symposium 1:** *Motor and sensorimotor processing*
12:00 – 2:00	**Lunch/Informal Poster Viewing**	**Lunch/Informal Poster Viewing**	**Lunch/Informal Poster Viewing**	**Free Time**	**Lunch**
2:00 – 4:00	**Plenary 2:** Carsten Duch (2:00 – 3:00 pm)	**Plenary 4:** Malcolm Burrows (2:00 – 3:00 pm)	**Poster Session II & Coffee** (2:00 – 3:30 pm: even poster numbers; 3:30 – 5:00 pm: uneven poster numbers)		Concurrent Participant Symp. **Symposium 2:** *Attention, Localization, and Alarm* **Symposium 3:** *Audition and mechanosensation* **Symposium 4:** *Visual processing*
	Poster Session I & Coffee	**Coffee Break** (3:00 – 3:30 pm)			
	numbers; 4:30 – 6:00 pm: uneven poster numbers)	Concurrent Invited Symposia (3:30 – 5:30 pm)			
4:00 – 6:00		**Symposium 1:** *Animal visual search* **Symposium 2:** *Correlated neural activity in tadpole and zebrafish studied by recent advanced technologies* **Symposium 3:** *Fixed and flexible traits in mating signals: evolution, genetics, and physiological background*			**End of Congress**
			Free Time		
6:00 – 9:00	**Heiligenberg Lecture: James A. Simmons** (6:00 – 7:00 pm) ***Graduate Student/Post-Doc Mixer*** *(7:00 – 9:00 pm)*	**Huber Lecture: Edward A. Kravitz** (6:00 – 7:00 pm) ***EC Meeting*** *(7:00 – 8:00 pm)*	***Business Meeting and Awards*** *(6:00 – 7:00 pm)*	***Cruise Banquet***	

Sunday, August 5, 6:00-9:00 pm: Registration and Welcome Reception at the Clarice Smith Performing Arts Center (CSPAC)

CONTENTS



WELCOME

Message from Local Organizing Committee

On behalf of the Local Organizing CommiNee I welcome you to the 10th mee7ng of the Interna7onal Congress for Neuroethology. The University of Maryland (UMD) is one of the leading public ins7tu7ons in the United States, with over 25,000 undergraduate and 10,000 graduate students. We have numerous world---class programs in science and engineering, as well as in the social sciences, arts, and humani7es.

Of par7cular interest to ICN aNendees might be our programs related to neuroscience and cogni7ve science. Indeed, you might want to explore the website of our Neuroscience and Cogni7ve Science (NACS) program (www.nacs.umd.edu) or our auditory neuroscience program website (www.ccebh.umd.edu) to find colleagues on campus with whom you might like to visit while here. We have over 100 faculty involved in these disciplines, and they cover a wide range of research areas. We are par7cularly proud of our large number of neuroethologists.

Please, while you are here, feel free to also explore our lovely campus. Perhaps you will have a chance to meet Testudo, our campus mascot, or even discover (right outside of our mee7ng venue) a wonderful statue honoring the brilliant puppeteer Jim Henson and his greatest crea7on, Kermit the Frog. Henson was an undergraduate here at UMD where he created his own major in puppeteering!

The opening of the mee7ng will take place in the Clarice Smith Center for the Performing Arts. The mee7ngs themselves take place in the Adele H. Stamp Student Union. This building is fully handicapped accessible and well air condi7oned. Wi---Fi is available all over campus and every par7cipant will be given an account for free access. Lunches will be near the Stamp Union in the Riggs Alumni Center.

Since UMD is so close to our Na7on's capital, we set aside Thursday a]ernoon so those who are here for only a limited 7me can enjoy some of the sights of Washington, DC. DC (as the locals refer to it) abounds with things to do. Thus, you may want to look at our web page in advance and plan your visit. Because this area is rather warm in summer, you may prefer to spend 7me in some of our museums. Many of our world---class museums are part of the Smithsonian Ins7tu7on, and admissions to all is without cost! Of course, you can also go to any of the great monuments (though the Washington Monument is closed for repair) or na7onal buildings and wander around. There are many good restaurants in DC as well (take a look at the restaurant pages at www.washingtonpost.com or www.washingtonian.com). Finally, our evening cruise/banquet on the Potomac (which will allow lovely views of DC) will take place Thursday evening. It will be easy to get to the cruise boat from anywhere in DC. Instruc7ons will be included with your cruise 7ckets, and we will provide transporta7on back to campus a]erwards.

Of course, if you have any ques7ons during the mee7ng we will have a team of student and post---doc volunteers who will be clearly iden7fied and ready to help you. And, there will always be someone at the registra7on desk to help out as well.

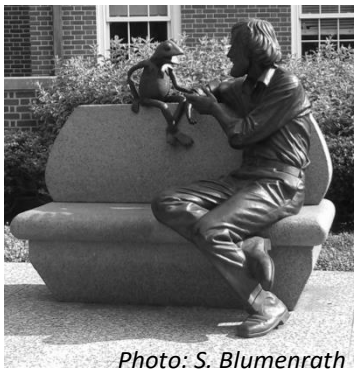


Photo: S. Blumenrath

Finally, I want to express my personal thanks to all of my colleagues on the Local CommiNee, as well as to the outstanding co---chairs of the Program CommiNee, for their help, coopera7on, and very effec7ve work in pubng the mee7ng together. We also are very grateful to the organiza7ons that provided funds to the mee7ng to help us keep costs reasonable and also for the funds that have enabled us to support the aNendance of over 100 graduate students and postdocs.

--- Arthur Popper, Chair, Local Organizing CommiNee

WELCOME

Message from ISN President

As the outgoing President of the Interna7onal Society for Neuroethology (ISN), it is my pleasure to welcome you to the Interna7onal Congress of Neuroethology (ICN). As you aNend the talks and posters this week, you will find research at all levels of analysis from molecular to purely behavioral. You will find a wide variety of species represented. Most importantly, you will find researchers from many different na7ons. I find these Congresses to be the most enjoyable and intellectually s7mula7ng conferences that I aNend, and I hope that you will as well.

In addi7on to organizing this Congress, the ISN helps promote young inves7gators through various awards and prizes. On Tuesday morning we will hear presenta7ons from winners of the Young Inves7gator Awards. Wednesday evening at the Business Mee7ng, we will recognize this and last year's winners of the Capranica Prize, preceded by a short tribute to Bob Capranica who recently passed away. We will also recognize winners of the Heiligenberg Travel Award and the Developing Neuroethology Award, which assists young inves7gators from the developing world.

I encourage everyone to aNend the business mee7ng, where we will see a presenta7on about the 2014 Interna7onal Congress of Neuroethology, which will be held in Sapporo Japan. We will also see proposals for the 2016 Interna7onal Congress of Neuroethology, meet the candidates for ISN Officers and Council, and I will turn over the leadership of the ISN to our new president, Alison Mercer. As a member, you help shape the future of the ISN by helping to select conference sites, choose representa7ves, and organize symposia.

As ISN looks to build the future, it also remembers its roots. Monday morning is the Roots, Progress, and Prospects Symposium. Prior to the talks, we will take a moment to recognize the recipients of a new honor for our dis7nguished members: Fellow of the Interna7onal Society for Neuroethology. Some of the founders of our Society will be given this special honor.

If you are not already a member of the ISN, please go to www.neuroethology.org and join. Your membership helps promote the kind of science represented at this conference. I hope that you will find the Interna7onal Society for Neuroethology your academic home.

--- Paul S. Katz, ISN President

ACKNOWLEDGEMENTS

FUNDING

Funding for this conference was generously provided by grants from the Na7onal Ins7tute of Neurological Disorders and Stroke (NINDS; NIH grant # 1R13NS080516---01), the Na7onal Science Founda7on (grant #: IOS 1226873), and the Air Force Office of Sponsored Research (AFOSR grant #: 12RSL145). The views expressed in wriNen conference materials or publica7ons and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services or any other of the funding agencies; nor does men7on of trade names, commercial prac7ces, or organiza7ons imply endorsement by the U.S. Government.

We are also very grateful for broad support for the Congress from various Colleges and Programs at the University of Maryland including the A. James Clark School of Engineering, College of Behavioral and Social Sciences (BSOS), College of Computer, Mathema7cal, and Natural Science (CMNS), Center for Compara7ve and Evolu7onary Biology of Hearing (C---CEBH), The Graduate School, Program in Neuroscience and Cogni7ve Science (NACS), and School of Public Health (SPH).

We are apprecia7ve of addi7onal support provided by the Acous7cal Society of America.

PROGRAM COMMITTEE

Hans---Joachim Pflüger (Germany), Co---Chair
Andrea Simmons (USA), Co---Chair
Melissa Coleman (USA)
Mark Frye (USA)
Asif Ghanzanfar (USA)
Mar7n Giurfa (France)
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Roy Ritzmann (USA)
Peter Simmons (UK)
Sakiko Shiga (Japan)
Annemarie Surlykke (Denmark)
Lidia Szczupak (Argen7na)

LOCAL ORGANIZING COMMITTEE

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ACKNOWLEDGEMENTS

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ADDITIONAL HELP WAS PROVIDED BY

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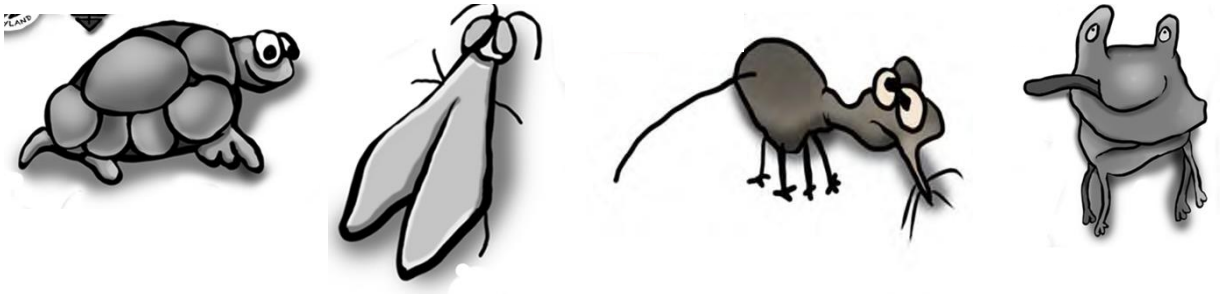
CONFERENCE PHOTOGRAPHY

Peter Berger



Like the ICN 2012 Doodles?
You can purchase merchandise with them by visiting the Neuroethology 2012 store on cafepress:
www.cafepress.com/isn2012

General Conference Information

Registration & Information Desk

The conference registra7on desk will be located Monday through Friday in the Stamp Student Union, adjacent to the Grand Ballroom. On Sunday, registra7on will be available at the Welcome Recep7on in the Clarice Smith Performing Arts Center.

At the registra7on desk you can:

- Check in and receive your par7cipa7on packet
- Ask ques7ons about registra7on or on---campus accommoda7ons
- Get tourist informa7on
- Lost and found

Venue Information

The majority of the conference ac7vi7es will take place in the Adele H. Stamp Student Union. All Plenary talks, Special Symposia, and Evening Lectures will take place in the Colony Ballroom, located on the 2nd floor. Concurrent Invited and Par7cipant Symposia will take place in the Hoff Theater (ground floor), Colony Ballroom (2nd floor) and Prince George's Room (1st floor). Poster sessions will take place in the Grand Ballroom (1st floor).

Lunch & Coffee Breaks

Lunch will provided to registered aNendees Monday, Tuesday, Wednesday, and Friday from 12 to 2 pm in the Riggs Alumni Center. Coffee break refreshments will be served in the Grand Ballroom and Grand Ballroom Lounge.

Internet Access

At registra7on you will receive a login and password for gaining internet access on your private computer or mobile device. Internet access is available throughout all buildings and open spaces of the campus. To access, select "UMD" from the list of available networks. You will be prompted to enter your login and password upon opening your browser.

Hotel Loop Shuttle

ShuNle service is provided between the conference venue and the Holiday Inn College Park, Hilton Garden Inn, and Comfort Inn & Suites College Park. ShuNles will leave hotels at 7:30 am to arrive at the venue by 8 am and will return a]er the last scheduled session or event. Thursday a]er the morning sessions, the shuNle will make an addi7onal stop at the College Park Metro Sta7on. A detailed schedule and routes can be picked up at the registra7on desk.

If you wish to return to your hotel during the day, hotel---owned shuNles can be called at the numbers listed below. Please go to the registra7on desk if you need assistance.

Hilton Garden Inn: (301) 474---7400
Holiday Inn College Park: (301) 345---6700
Comfort Inn & Suites College Park: (301) 441---8110

Parking

Visitor parking is available in several garages on campus. Regents Garage and Union Lane Garage are the closest parking op7ons for the mee7ng (see back cover for garage loca7ons). Please park in specified visitor parking areas and use the pay sta7ons upon leaving your car.

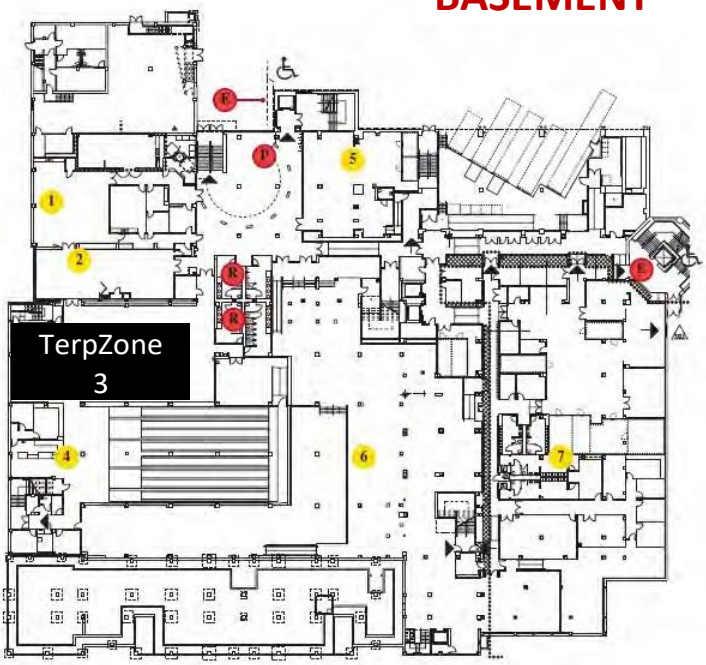
Note: Residence hall parking permits are not valid in the garages.

MAP OF STAMP STUDENT UNION

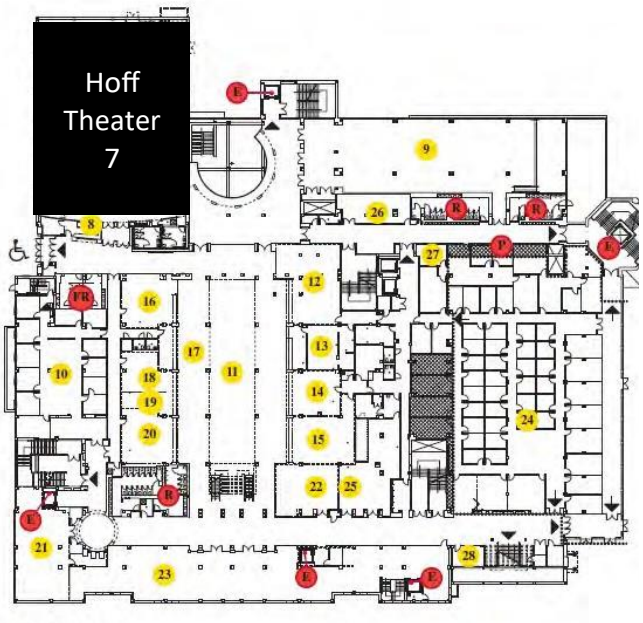
BASEMENT

Basement

1 – Art & Learning Center (B0107)
2 – Activities Room (B0108)
3 – TerpZone–Bowling/Billiards/TV Lounge
4 – Subway (B0106)
5 – Food Co-op (B0203)
6 – University Book Center
7 – Facilities Office (B0226)
P – Public Phones
R – Restrooms
E – Elevator



GROUND FLOOR



Ground Floor

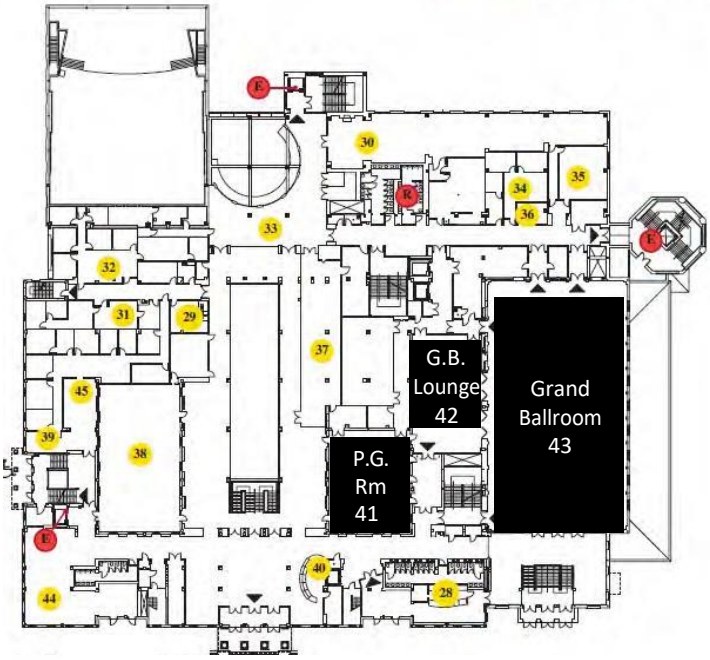
7 – Hoff Theater (0126)
8 – Stamp Ticket Office (0124)
9 – Baltimore Room (0240)
10 – Campus Programs – Student Engagement/ Leadership/Community Service Learning (0110)
11 – Food Court (0496)
12 – McDonald's (0215)
13 – Saladworks (0214)
14 – Moby Dick
15 – Sbarros (0212)
16 – Chick-Fil-A (0118)
17 – Sushi by Panda (0117)
18 – Taco Bell (0113)
19 – Auntie Anne's (Coming soon)
20 – Panda Express (0112)
21 – Capital One Bank (0105)
22 – Terrapin Shipping and Mailing (0211)
23 – University Book Center (Terp Shop)
24 – Student Involvement Suite (0207, 0208, 0209)
25 – Union Shop (0210)
26 – Copy Services (0232)
27 – SEE–Student Entertainment Events (0221)
28 – Terrapin Technology Store (0203)
P – Public Phones
FR – Family Restroom
R – Restroom
E – Elevator

MAP OF STAMP STUDENT UNION

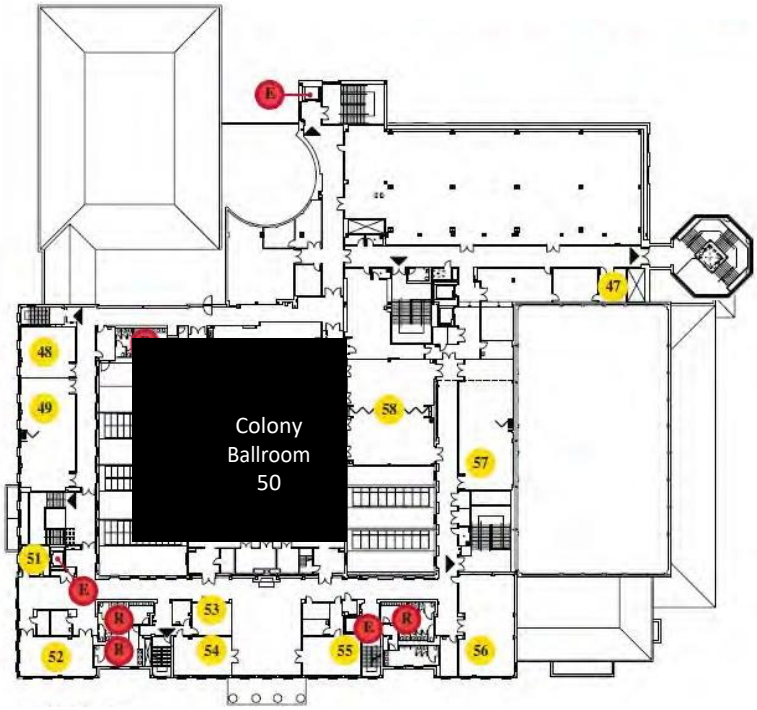
First Floor

28 – Coffee Bar (1203)
29 – Multicultural Involvement & Community Advocacy
30 – Adele's (1240)
31 – Graduate Student Suite (1121)
32 – Event Services/Marketing
33 – North Court (1482)
34 – Undergraduate/Graduate Legal Aid (1235)
35 – Nanticoke Room (1238)
36 – Marketing Asst. (1236)
37 – Stamp Gallery (1220)
38 – Atrium (1107)
39 – Off Campus Housing (1110)
40 – Information Desk (1201)
41 – Prince George's Room (1210)
42 – Grand Ballroom Lounge (1209)
43 – Grand Ballroom (1206)
44 – Reading Room (1105)
45 – Office of Fraternity & Sorority Life (1110)
R – Restrooms
E – Elevator

FIRST FLOOR



SECOND FLOOR



Second Floor

47 – Technology Services - IT Help/ Audio Visual Services (2220)
48 – Thurgood Marshall Room (2113)
49 – Margaret Brent Room (2112)
50 – Colony Ballroom (2203)
51 – Harriet Tubman (2110)
52 – Pyon Su Room (2108)
53 – Edgar Allen Poe Room
54 – Calvert Room
55 – Crossland Room
56 – Juan Ramon Jimenez Room
57 – Benjamin Banneker Room
58 – Charles Carroll Room
R – Restrooms
E – Elevator

AREA INFORMATION

THE UNIVERSITY OF MARYLAND, COLLEGE PARK

The University of Maryland is one of the largest and most respected public universi7es in the United States. Started in 1859 as Maryland Agricultural College with 34 students, the university now serves over 25,000 undergraduate students and 10,000 graduate students. A self---guided tour of many of the campus landmarks can be found at our Conference & Visitor Services website hNp://www.cvs.umd.edu/visitors/campustour.html or picked up at the Visitor Center (see campus map on back cover). You can learn more about the university's history at hNp://www.lib.umd.edu/univarchives/links.html.

TRANSPORTATION

The university campus is located in Prince George's County, Maryland, in the city of College Park. The campus is 10 miles from Washington D.C. and about 30 miles each from Bal7more and Annapolis, Maryland's State capital. A combina7on of free university shuNle service and the Metro (our subway) is the best way to get to most Washington D.C. aNrac7ons. Taxis and rental cars, such as the many Zipcars parked on campus, might be the best choice for other loca7ons.

ShuXle UM

Route 104 travels between several loca7ons on campus and the College Park metro sta7on. It is about 1.5 miles from the Stamp Student Union to the Metro sta7on. ShuNles leave from the bus bay outside the Union on College Drive. Weekday service runs every 10 minutes from 6 am to 8 pm, con7nuing every 20 minutes un7l 12:40 am.
For other routes and addi7onal informa7on see the ShuNle UM website:
hNp://www.transporta7on.umd.edu/

The Metro (Subway)

The Metro is probably the best way to get downtown. The next page shows a subway system map. The College Park Metro Sta7on is near the end of the Green Line. The price of your ride is determined by how far you want to go and the 7me of day. A trip from College Park to the Smithsonian Sta7on, for example, costs $3.90 with SmarTrip Card and $4.90 using cash during rush hour (weekdays from opening to 9:30 am and 3 to 7 pm), and $2.75 or $3.75 (SmarTrip Card and cash, respec7vely) during non---rush hour. Upon exi7ng the sta7on the cost of your trip will be deducted from your fare card. FYI, it is against the law to eat or drink or carry open food on the Metro, and you are liable to be 7cketed if you do.

In addi7on to the subway, the metro also runs many buses throughout the area. Useful bus routes are the 81, 83, and 86 – which connect to the campus, College Park Metro, Rhode Island Ave Metro and points in Beltsville.

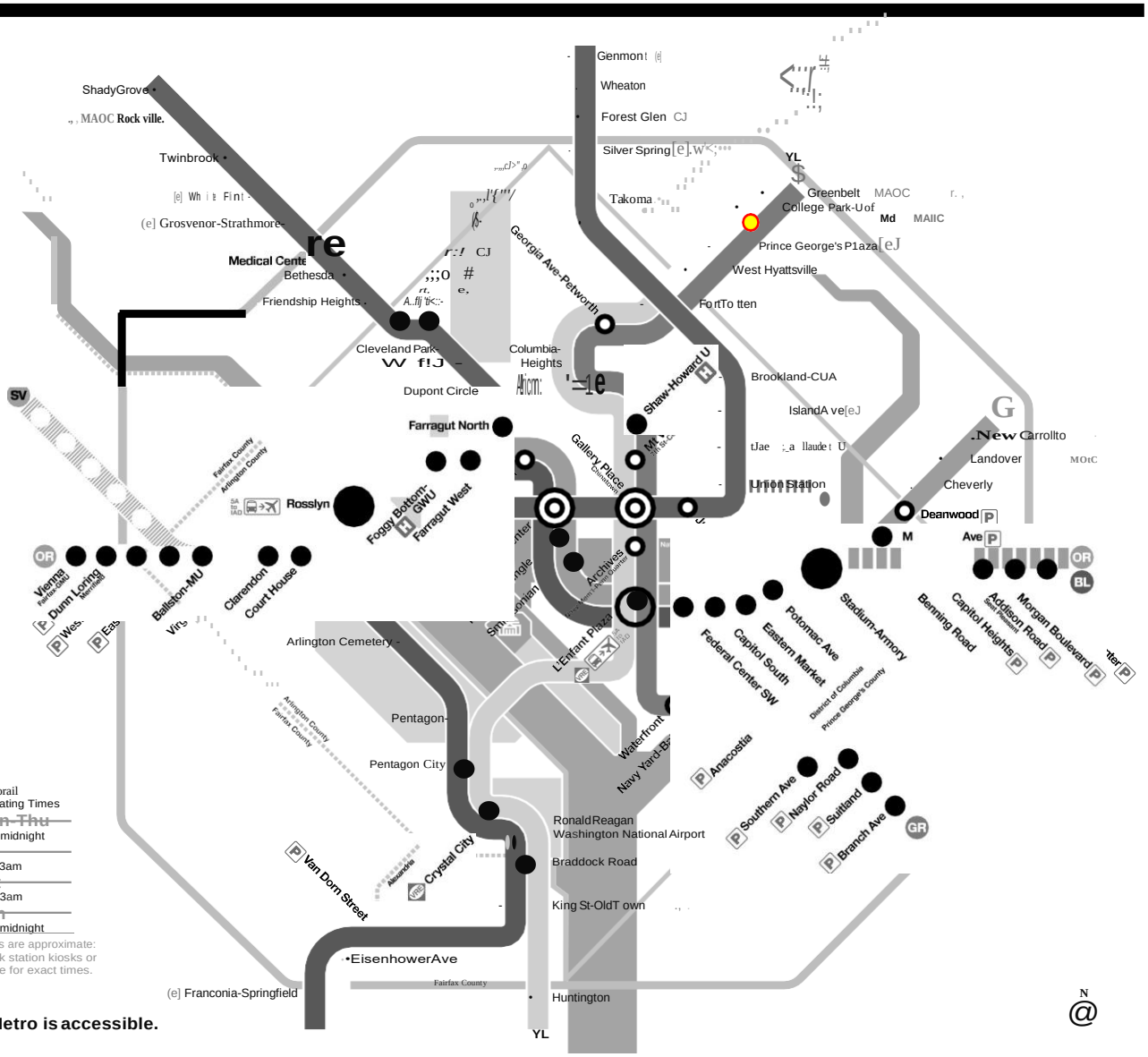
A trip planner and other informa7on can be found on www.wmata.com, or use the DC Metro Transit smartphone app.

System Map

wmata.com
Customer Infom,ation Service: 202-637-7000
TTY Phone: 202-6.38-3780

Legend
- Red Line • Glenmont to Shady Grove
- Orange Line • New Carrollton to Vienna
- Blue Line • Franoonia-Springfieldto Largo Town Center
- Green Line • Branch Ave to Greenbelt
- YL Yellow Line • Huntington to Fort Totten
- Silver Line • Future Dulles Conidor Line

Station Features
- Bus ta Airport
- (e] Parking
- CJ Hospital
- Airport
- Connecting Rail Systems
- MAIC
- Under Construction
- Planned Station
- Full-Time Service
- Rush- Ony Service Monday-Friday 6:30am • 9:00am 3:30pm - 6:00pm
- Station in Service



Metrorail Operating Times

~~Mon-Thu~~
Sam-midnight
~~Fri~~
5am-3am
~~Sat~~
7am-3am
~~Sun~~
?am-midnight

Times are approximate: check station kiosks or online for exact times.

b.Metro is accessible.

No Smoking · No Eating or Drinking · No Animals (except service animals) · No Audible (without earphones) · No Littering or Spitting · Flammable Items

AREA INFORMATION

AREA ATTRACTIONS & RESTAURANTS

College Park

Dining in College Park:

There are a variety of dining op7ons both on--- and off---campus. In the Stamp Student Union you can find a number of fast food op7ons in the food court, a Subway sandwich shop, the Food Co-op (vegetarian and vegan food), a coffee shop serving Starbuck's coffee, and Adele's restaurant (for a nice sit---down lunch). Another notable on---campus op7on is The Dairy, located in Turner Hall on Route 1 (next to the visitor's center). The Turner Dairy serves various food items and the university's own outstanding ICE CREAM. Off---campus, a number of take---out and sit---down ea7ng places can be found on the Route 1 corridor, both north and south of campus. A list of these and other local eateries can be found on the separate **College Park & HyaXsville Restaurant Guide** in your registra7on packet.

College Park AJracEons:

College Park Airport and Avia7on Museum (1985 Corporal Frank ScoN Drive)
Known as the "Cradle of Avia7on", this airport is the world's oldest con7nually operated airport.
hNp://history.pgparks.com/sites_and_museums/College_Park_Airport.htm

Lake Artemesia Natural Area Park (55th Ave and Lake Artemesia)
Public park with a 38---acre lake, fishing pier, aqua7c garden, and several miles of hiker-biker trails.
hNp://www.pgparks.com/Things_To_Do/Nature/Lake_Artemesia.htm

Beyond College Park

Many great aNrac7ons are located rela7vely close to College Park. In Washington D.C., the Smithsonian offers many free metro---accessible museums, including the Natural History Museum, a number of phenomenal art museums (Na7onal Gallery, Na7onal Portrait Gallery, African Art, Sacklar, Freer, Hirshhorn Museum, and Sculpture Garden), the Air and Space Museum, American Indian Museum, American History Museum, and the Na7onal Zoo. For music lovers, the U Street Corridor boasts great jazz venues and a vibrant night life. ANendees who are ren7ng cars may want to explore Annapolis, Bal7more's Inner Harbor, or Great Falls Park. The registra7on and informa7on desk may be able to assist with specific ideas and touring plans.

PRESENTER INFORMATION

ABSTRACTS

Abstracts of all poster and oral presenta7ons are published online and can be accessed at hNp://www.fron7ersin.org/events/Tenth_Interna7onal_Congress_o_1/1576/all_events by using the "View Abstracts" buNon, or through links embedded in the PDF version of this program book.

POSTER PRESENTATIONS

Poster boards will be located in the Grand Ballroom in the Stamp Student Union. Each poster has been designated with a number which matches a poster board. Please put your poster up in the appropriate spot.

Session I:

Set---up can start as early as 6 pm on Sunday, Aug. 5, and should be completed by 12 pm on Monday. All posters have to be removed by 3:30 pm on Tuesday, Aug. 7.
Presenters of EVEN numbered posters should be at their posters on Monday from 3 to 4:30 pm.
Presenters of ODD numbered posters should be at their posters on Monday from 4:30 to 6 pm.

Session II:

Set---up can start as early as 3:30 pm on Tuesday, Aug. 7, and should be completed by 12 pm on Wednesday. All posters have to be removed by 12 pm on Thursday, Aug. 9.
Presenters of EVEN numbered posters should be at their posters on Wednesday from 2 to 3:30 pm. Presenters of ODD numbered posters should be at their posters on Wednesday from 3:30 to 5 pm.

In addi7on to scheduled viewing 7mes, the poster hall will be open un7l 10:00 pm Monday, Tuesday, and Wednesday for informal poster viewing. Presenters are encouraged to list other 7mes that they will be available on a card that will be provided at their poster. We also encourage presenters to include a cellphone number or email address where other par7cipants can reach them to set up a 7me to meet at the poster.

ORAL PRESENTATIONS

Symposium presenta7ons will last 25 minutes, followed by 5 minutes for ques7ons, unless otherwise noted. All presenters should have received a URL and an individual upload password. Please use these to upload your presenta7on by 6 am of the day on which you are scheduled to present. Presenters can not use their own computers, and all presenta7ons should be in Windows---compa7ble format (PDF or PowerPoint).

PRESENTATION CODES

PL Plenary Lecture
SY Symposium
HE Heiligenberg Lecture
HU Huber Lecture
PO Poster

SOCIAL PROGRAM

WELCOME RECEPTION & PRESENTATIONS

Sunday, August 5th
6:30– 9:00 pm
Clarice Smith Performing Arts Center
(Registra7on opens at 6:00 pm)

Welcome to the University of Maryland, *Dr. Wallace Loh, University President*
Welcome to ICN2012, *Dr. Arthur N. Popper, Local Chair*

GRADUATE STUDENT & POST---DOC MIXER

Monday, August 6th
7:00 – 9:00pm
TerpZone in the basement of the Stamp Student Union

Hosted by: Amanda Chicoli, Ben Falk, and Melville Wohlgemuth
Pool tables, bowling alleys, and food.
Tickets (including one drink 7cket) are available for free to registered graduate students and post---docs. Tickets are needed for entrance and for the pizza and dessert buffet. Legal photo ID showing you are over 21 years of age is required to purchase alcohol.

BANQUET CRUISE

Thursday, August 9th
6:00 – 9:00 pm
6th and Water Street SW, Washington, DC 20024
Odyssey III Washington Cruise

Tickets are $96 and may be purchased at the registra7on desk un7l Monday a]ernoon or un7l the 7ckets sell out. The cruise company obliges the following dress code: “For women, cocktail wear, a dress or dressy---casual abre is appropriate. For men, collared shirts and dress pants are recommended. Nice, designer jeans are acceptable. However, casual jeans, t---shirts, athle7c shoes or flip flops are discouraged.”

To get to the cruise from UMD, take the Metro to the Waterfront Metro Sta7on (Green Line), exit the sta7on and turn right on M Street, which turns into Maine Ave. Turn le] onto 6th. ShuNle service will be available to bring you back to the UM campus and hotels.

If you are coming from downtown, you can take Metro from wherever you are to the Waterfront Metro Sta7on (Green Line) or take a taxi to the cruise loca7on. **Limited** Pay parking is available at the adjacent Gangplank Marina (off of Water Street). If you plan to park, you should allow extra 7me. You can always enjoy a stroll along the piers.

Look for ICN representa7ves next to the boat to receive your 7cket/boarding pass in exchange for your voucher. PLEASE NOTE: The boat sails promptly at 7 pm and you must pick up your boarding pass **before 6:45 pm. There are no refunds if you miss the boat.

OPTIONAL THURSDAY PM PROGRAMMING

THINGS TO DO ON THURSDAY AFTERNOON OTHER THAN EXPLORING DC

Lunch can be purchased in the Stamp Student Union either in the Food Court where you can grab "typical" American fast food ranging from burgers to pizza to sushi, or in Adele's – a sit-down restaurant on the upper level. The Stamp Union also has a Subway and several other venues to get sandwiches. There are signs to tell you where these are.

Lab Visits: We have arranged to open a number of labs of faculty in the Neuroscience and Cogni7ve Science Program (NACS) for informal visits. A lis7ng of these labs will be available at the registra7on desk, star7ng Monday morning. ICN2012 par7cipants can visit one or more of the open labs any 7me from 1 to 5 pm and stay as long as they like and in any sequence. We do ask that you sign up at the registra7on desk and indicate which lab(s) you are likely to visit, so we can let the inves7gators and their students know to expect people.

Doing Science Ethically & Globally *(Biological Science Research Building Rm. 3101)*: Many neuroethologists today are involved in some kind of interna7onal collabora7ons. This is one of the "fun" parts of doing science, and one of the most s7mula7ng. As we work on a more global scale, we o]en encounter a broader range of values and views on how science should be conducted. Yet, as we all know, there are core sets of basic principles on the conduct of science that remain rela7vely invariant across different cultures.

This session, run by an interna7onal group of neuroethologists, will consider the topic of scien7fic misconduct. Using an excep7onally well done interac7ve video, we will go step by step through a fic77ous case study on scien7fic misconduct with ample opportuni7es for discussion and for understanding the consequences of making alternate decisions on discovering, repor7ng, and adjudica7ng scien7fic misconduct in a research laboratory.

This session, which will run about 90 minutes, is limited to 15 par7cipants, with a focus on younger faculty. Lunch will be provided. To par7cipate, please sign up at the registra7on desk star7ng on Monday.

DAILY PROGRAM

SUNDAY, AUGUST 5

6:30 – 9:00	**Registration & Welcome Reception at Clarice Smith Performing Arts Center** (Registration opens at 6:00)

MONDAY, AUGUST 6

Unless noted, all events will take place in the Colony Ballroom.

8:20 – 8:30 am	**Welcome** **Jayanth Banavar**, Dean, College of Computer, Mathematical, and Natural Sciences
8:30 – 9:30	**Plenary 1** **Arthur N. Popper** (U. Maryland) *From blind cave fish to the Tappan Zee bridge –A tale of "translational neuroethology"* Chair: John Lu (U. Miami)
9:30 – 10:00	**Coffee Break** - Grand Ballroom Lounge
10:00 – 12:00	**Special Symposium**: *Roots, Progress, and Prospects* (p. 16)
12:00 – 2:00 pm	**Lunch** (Riggs Alumni Center), **Posters** (Grand Ballroom)
2:00 – 3:00	**Plenary 2** **Carsten Duch** (Arizona State U. and U. Mainz) *Probing motoneuron function with targeted genetic manipulation in Drosophila* Chair: Hans-Joachim Pflüger (Freie Universität)
3:00 – 6:00	**Poster Session I and Coffee Break** Grand Ballroom (p. 29 and p. 30)
6:00 – 7:00	**Heiligenberg Lecture** **James A. Simmons** (Brown U. and Doshisha U.) *Coherence for perception of target vs. clutter in bat sonar: The role of neuroethology as pathfinder for neuroscience* Chair: Cynthia F. Moss (U. Maryland)
7:00 – 9:00	**Graduate Student and Post-doc Mixer** @ TerpZone

MONDAY, AUGUST 6

SPECIAL SYMPOSIUM

ROOTS, PROGRESS, AND PROSPECTS Chair: Peter M. Narins (U. California Los Angeles) Colony Ballroom			
10:00		Announcement of New ISN Fellows	**Paul S. Katz**
10:05		Introduction	**Peter M. Narins**
10:10	SY1	Neuro-Ethology: Evolution and ontogeny of motor control	**William B. Kristan** (U. California San Diego)
10:35	SY2	Musical qualities in the songs of African clawed frogs: Phylogenetic signals and laryngeal mechanisms	**Darcy B. Kelley,** Ursula Kwong-Brown, Martha L. Tobias, and Damian O. Elias (Columbia U. and U. California Berkeley)
11:00	SY3	The roots of neuroethology: Where have all the flowers gone?	**Ronald R. Hoy** (Cornell U.)
11:25	SY4	Evolutionary foundations of sensory neuroethology	**Catherine E. Carr** (U. Maryland)

TUESDAY, AUGUST 7

Unless noted, all events will take place in the Colony Ballroom.

8:30 – 9:30 am	**Plenary 3** **Ole Kiehn** (Karolinska Inst.) *Probing neural circuits controlling walking: Moving forward* Chair: Lidia Szczupak (U. Buenos Aires)
9:30 – 10:00	**Coffee Break** - Grand Ballroom Lounge
10:00 – 12:00	**Special Symposium**: *Young Investigators* (p. 18)
12:00 – 2:00 pm	**Lunch** (Riggs Alumni Center), **Posters** (Grand Ballroom)
2:00 – 3:00	**Plenary 4** **Malcolm Burrows** (U. Cambridge) *How do animals move quickly: Interactions between brain, muscle, and skeleton* Chair: Roy Ritzmann (Case Western Reserve U.)
3:00 – 3:30	**Coffee Break** - Grand Ballroom Lounge
3:30 – 5:30	Concurrent Invited Symposia **Invited Symposium 1:** *Animal visual search* Colony Ballroom (p. 18) **Invited Symposium 2:** *Correlated neural activity in tadpole and zebrafish studied by recent advanced technologies* Prince Georges' Room (p. 18) **Invited Symposium 3**: *Fixed and flexible traits in mating signals: Evolution, genetics, and physiological background* Hoff Theater (p. 19)
5:30 – 6:00	**Coffee Break** - Grand Ballroom Lounge
6:00 – 7:00	**Huber Lecture** **Edward A. Kravitz** (Harvard U.) *Genetic manipulations in the fruit fly fight club: Role of amine neurons studied at a single neuron level* Chair: Hans Hofmann (U. Texas)

TUESDAY, AUGUST 7

SPECIAL SYMPOSIUM

YOUNG INVESTIGATORS SYMPOSIUM
Chair: Paul Katz (Georgia State U.)
Colony Ballroom

10:00	SY5	What ants do when they are lost? Multiple interactions between different navigational systems	**Antoine Wystrach** (U. Sussex and Macquarie U.)
10:30	SY6	The neural substrate of the celestial compass	**Basil el Jundi** (Lund U.)
11:00	SY7	Neural representation of two- and three-dimensional space in the hippocampal formation of behaving bats	**Michael Yartsev** (Weizmann Inst.)
11:30	SY8	Evolutionary convergence of gene modules regulating social systems	**Lauren O'Connell** (U. Texas)

INVITED SYMPOSIA

INVITED SYMPOSIUM 1: ANIMAL VISUAL SEARCH
Chairs: Hermann Wagner (RWTH Aachen U.) and Ohad Ben-Shahar (Ben-Gurion U.)
Colony Ballroom

3:30	SY9	Non-selective and selective processing in human visual search	**Karla K. Evans** (Harvard U.)
4:00	SY10	Visual search and orientation saliency in barn owls	**Julius Orlowski** and Hermann Wagner (RWTH Aachen U.)
4:30	SY11	Orientation saliency processing – abstracted from neural hardware and perceptual dimensions	**Alik Mokeichev**, Ronen Segev, and Ohad Ben-Shahar (Ben Gurion U.)
5:00	SY12	Visual search and attention in bumblebees	**Vivek Nityananda**, Muyun Wang, Thomas Ings, Michael Proulx, Peter Skorupski, Jonathan Pattrick, and Lars Chittka (Queen Mary U.)

INVITED SYMPOSIUM 2: CORRELATED NEURAL ACTIVITY IN TADPOLE AND ZEBRAFISH STUDIED BY RECENT ADVANCED TECHNOLOGIES
Chair: Kazuo Imaizumi (Louisiana State U.)
Prince George's Room

3:30	SY13	Global and local synchronous spontaneous activity in the developing optic tectum	**Ikazuo Imaizumi** (Louisiana State U.)
4:00	SY14	Activity correlation imaging: Visualizing function and structure of neuronal populations	**Mihai Alevra**, Stephan Junek, Tsai-Wen Chen, and Detlev Schild (Georg-August U. Göttingen, Max Planck Inst., HHMI, and DFG Research Ctr.)

TUESDAY, AUGUST 7

4:30	SY15	Visualization of functional neural circuits in zebrafish	**Akira Muto** and Koichi Kawakami (Natl. Inst. of Genetics)
5:00	SY16	Ongoing spontaneous activity dynamics in zebrafish larvae	**German Sumbre** (Inst. de Biologie de l'École Normale Supérieure)

INVITED SYMPOSIUM 3: FIXED AND FLEXIBLE TRAITS IN MATING SIGNALS: EVOLUTION, GENETICS, AND PHYSIOLOGICAL BACKGROUND
Chairs: Varvara Vedenina (Russian Academy of Sciences) and Michael D. Greenfield (Université François Rabelais de Tours)
Hoff Theater

3:30	SY17	Using colour vision principles to understand criteria for mate choice	**John A. Endler** (Deakin U.)
4:00	SY18	Phenotypic plasticity, genotype x environment interaction, and the sexual selection process	**Michael D. Greenfield** (U. François Rabelais de Tours)
4:30	SY19	Complex signals: What do spiders have to say?	**Andrew Mason**, Damian Elias, and Paul De Luca (U. Toronto, U. California Berkeley, College of the Bahamas)
5:00	SY20	Variable courtship song traits in the field cricket *Gryllus assimilis* fit the features of the female sensory system	**Varvara Vedenina** and Gerald Pollack (Russian Acad. of Sci. and McGill U.)

WEDNESDAY, AUGUST 8

Unless noted, all events will take place in the Colony Ballroom.

8:30 – 9:30 am	**Plenary 5** **Constance Scharff** (Freie U. Berlin**)** *Is FoxP2 a candidate for 'deep homology'?* Chair: Melissa Coleman (Claremont McKenna College)
9:30 – 10:00	**Coffee Break** - Grand Ballroom Lounge
10:00 – 12:00	Concurrent Invited Symposia **Invited Symposium 4:** *Variability in intrinsic properties of neurons and their synaptic connections: Consequences for the functional output of neuronal networks* Hoff Theater (p. 21) **Invited Symposium 5:** *Multiple cues for orientation: Integration, hierarchy, and representation of cues* Colony Ballroom (p. 21) **Invited Symposium 6:** *No oxygen, no problem! The neuroethology of hypoxia tolerant mammals* Prince George's Room (p. 22)
12:00 – 2:00 pm	**Lunch** (Riggs Alumni Center), **Posters** (Grand Ballroom)
2:00 – 5:00	**Poster Session II and Coffee Break** Grand Ballroom (p. 29 and p. 42)
6:00 – 7:00	**Business Meeting and Awards**

WEDNESDAY, AUGUST 8

INVITED SYMPOSIA

INVITED SYMPOSIUM 4: VARIABILITY IN INTRINSIC PROPERTIES OF NEURONS AND THEIR SYNAPTIC CONNECTIONS: CONSEQUENCES FOR THE FUNCTIONAL OUTPUT OF NEURONAL NETWORKS
Chair: Ronald Calabrese (Emory U.)
Hoff Theater

3:30	SY21	Variability and co-variation of ion channel properties in mammalian pacemaker neurons	**Jean-Marc Goaillard** (INSERM Marseille)
4:00	SY22	Individual variability in synaptic properties has functional consequences for susceptibility to and recovery from lesion of a central pattern generator	**Akira Sakurai** (Georgia State U.)
4:30	SY23	Animal-to-animal variability in temporal pattern and synaptic strength: Implications for functional coordination of motor neurons by the heartbeat CPG of leeches	**Brian J. Norris**, Angela Wenning, and Ronald L. Calabrese (California State U. and Emory U.)
5:00	SY24	Temperature perturbations reveal variability in cellular and circuit properties in a rhythmic motor system	**Eve Marder** (Brandeis U.)

INVITED SYMPOSIUM 5: MULTIPLE CUES FOR ORIENTATION: INTEGRATION, HIERARCHY, AND REPRESENTATION OF CUES
Chair: Rachel Muheim (Lund U.)
Colony Ballroom

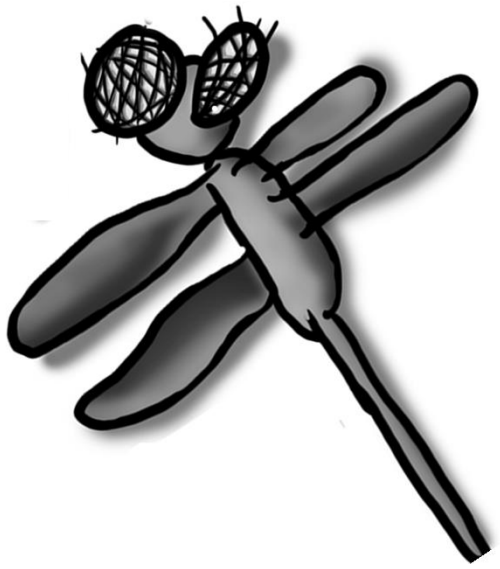
3:30	SY25	Spatial cognition: The representation of three-dimensional space	**Robert I. Holbrook** and Theresa Burt de Perera (Oxford U.)
4:00	SY26	3-D head-direction cells in the bat presubiculum	**Arseny Finkelstein**, Dori Derdikman, Jakob Foerster, Liora Las, and Nachum Ulanovsky (Weizman Inst. and Technion)
4:30	SY27	Magnetic compass orientation and polarized light sensitivity in birds - behavioural and physiological mechanisms of cue integration	**Rachel Muheim** (Lund U.)
5:00	SY28	Multimodal sensing for flight control and navigation in honeybees	**Mandyam Srinivasan** (U. Queensland)

WEDNESDAY, AUGUST 8

INVITED SYMPOSIUM 6: NO OXYGEN, NO PROBLEM! THE NEUROETHOLOGY OF HYPOXIA TOLERANT MAMMALS

Chair: Thomas Park (U. Illinois, Chicago)
Prince George's Room

3:30	SY29	Resistance to cerebral ischemia/reperfusion injury in the arctic ground squirrel (*Urocitellus parryii*) does not depend on the hibernation season	**Kelly L. Drew** and Jeanette T. Moore (U. Alaska)
4:00	SY30	Adaptations for long term anoxia tolerance reduce oxidative stress in the freshwater turtle *Trachemys scripta*	**Sarah Milton**, Howard Prentice, and Shailaja Kesaraju (Florida Atlantic U.)
4:30	SY31	When the brain goes diving: Adaptations for cerebral hypoxia tolerance in diving mammals	**Lars P. Folkow** (U. Tromso)
5:00	SY32	Buried alive! Arrested development and hypoxia tolerance in the naked mole-rat	**John Larson**, Bethany L. Peterson, Madeline Romano, and Thomas J. Park (U. Illinois, Chicago)



THURSDAY, AUGUST 9

Unless noted, all events will take place in the Colony Ballroom.

8:30 – 9:30 am	**Plenary 6** **Elke K. Buschbeck** (U. Cincinnati) *The making of an eye: Structural and functional diversity of stemmata* Chair: Thomas Park (U. Illinois, Chicago)
9:30 – 10:00	**Coffee Break** - Grand Ballroom Lounge
10:00 – 12:00	Concurrent Invited Symposia **Invited Symposium 7:** *Activity generated modulation of motion vision responses* Colony Ballroom (p. 23) **Invited Symposium 8:** *Automated social behavior analysis* Prince George's Room (p. 24) **Invited Symposium 9:** *Invertebrate models for locomotion research* Hoff Theater (p. 24)
12:00 – 6:00 pm	**Free Time** **Optional Thursday Programming** (p. 14)
6:00 – 9:00	**Cruise Banquet**

INVITED SYMPOSIA

INVITED SYMPOSIUM 7: ACTIVITY GENERATED MODULATION OF MOTION VISION RESPONSES
Chair: Karin Nordstrom (Uppsala U.)
Colony Ballroom

10:00	SY33	Modulation of visual processing by flight behavior in Drosophila	**Gaby Maimon** (Rockefeller U.)
10:30	SY34	Endogenous release of octopamine mediates flight-induced modulation of visual interneurons in *Drosophila melanogaster*	**Marie P. Suver**, Akira Mamiya, and Michael H. Dickinson (U. Washington)
11:00	SY35	State-dependent motion vision in walking blowflies	**Kit Longden** and Holger G. Krapp (Imperial College London)
11:30	SY36	Linking vision and action in Drosophila	**Vivek Jayaraman** (HHMI)

THURSDAY, AUGUST 9

INVITED SYMPOSIUM 8. AUTOMATED SOCIAL BEHAVIOR ANALYSIS Chair: Tali Kimchi (Weizmann Inst.) Prince George's Room			
10:00	SY37	Machine vision tools for quantitatively measuring animal behavior in large scale experiments	Mayank Kabra, Alice Robie, Marta Rivera-Alba, Jonathan Hirokawa, Steven Branson, and **Kristin Branson** (HHMI and U. California San Diego)
10:30	SY38	Completely automatic tracking of individuals in groups from video, with a focus on fish	Alfonso Perez-Escudero and **Gonzalo de Polavieja** (Cajal Inst.)
11:00	SY39	Quantifying mouse social behavior	**S. E. Roian Egnor**, Shay Ohayon, Pietro Perona, and Adam Taylor (HHMI)
11:30	SY40	Automated behavioral phenotyping platform for multiple mice	**Genadiy Vasserman**, Aharon Weissbrod, and Tali Kimchi (Weizmann Inst.)

INVITED SYMPOSIUM 9. INVERTEBRATE MODELS FOR LOCOMOTION RESEARCH Chair: Amir Ayali (Tel Aviv U.) Hoff Theater			
10:00	SY41	Origin of the first neurons as sensory-motor and sensory-neurosecretory cells	**Gaspar Jekely** (Max Planck Inst.)
10:30	SY42	The worm turns: Neural control of nematode locomotion	**Netta Cohen** (U. Leeds)
11:00	SY43	The neurophysiological basis of motor function In the octopus - an animal with an unusual 'embodiment'	**Binyamin Hochner** (Hebrew U.)
11:30	SY44	Adaptive control of six-legged locomotion	**Einat Fuchs**, Amir Ayali, Philip Holmes, Tim Kiemel, and Izhak David (Princeton U., Tel Aviv U. and U. Maryland)

FRIDAY, AUGUST 10

Unless noted, all events will take place in the Colony Ballroom.

8:30 – 9:30 am	**Plenary 7** **Toshiya Matsushima** (Hokkaido U.) *Chick neuro-economics: Profitability, risk, and competition* Chair: Andrea M. Simmons (Brown U.)
9:30 – 10:00	**Coffee Break** - Grand Ballroom Lounge
10:00 – 12:00	Concurrent Invited and Participant Symposia **Invited Symposium 10:** *Nociceptors in the real world* Prince George's Room (p. 26) **Invited Symposium 11:** *Polarization vision: New discoveries of natural behaviors* Hoff Theater (p. 26) **Participant Symposium 1:** *Motor and sensorimotor processing* Colony Ballroom (p. 27)
12:00 – 2:00 pm	**Lunch** (Riggs Alumni Center)
2:00 – 4:00	Concurrent Participant Symposia **Participant Symposium 2:** *Attention, Localization, and Alarm* Prince George's Room (p. 27) **Participant Symposium 3:** *Audition and mechanosensation* Hoff Theater (p. 28) **Participant Symposium 4:** *Visual processing* Colony Ballroom (p. 28)

FRIDAY, AUGUST 10

INVITED SYMPOSIA

10:00	SY45	Larval nociception behavior in Drosophila	**W. Daniel Tracey** (Duke U.)
10:30	SY46	Does nociceptive sensitization confer fitness benefits on injured squid, *Loligo pealeii*?	**Robyn J. Crook**, Roger T. Hanlon, and Edgar T. Walters (U. Texas Health Science Ctr. and Marine Biol. Lab.)
11:00	SY47	The molecular basis of behavioural acid insensitivity in the African naked mole-rat	**Ewan St. John Smith**, Damir Omerbasic, Stefan G. Lechner, Gireesh Anirudhan, Liudmila Lapatsina, and Gary R. Lewin (Max-Delbrueck Ctr. and New York U.)
11:30	SY48	Nociception and pain in teleost fish	**Victoria Braithwaite** (Pennsylvania State U.)

INVITED SYMPOSIUM 11: POLARIZATION VISION: NEW DISCOVERIES OF NATURAL BEHAVIORS
Chairs: Nicholas Roberts and Shelby Temple (U. Bristol)
Hoff Theater

10:00	SY49	Through the looking glass: Polarization vision versus transparency and mirror-based camouflage in the open sea	**Sönke Johnsen** (Duke U.), N. Justin Marshall (U. Queensland), and Thomas W. Cronin (U. Maryland, Baltimore)
10:30	SY50	Polarized communication and camouflage in fishes	**Molly E. Cummings**, Gina Calabrese, and Parrish Brady (U. Texas)
11:00	SY51	Polarisation vision: An unexplored channel for communication?	**Justin Marshall**, Martin How, Tsyr-Huei Chiou, Nicholas Roberts, Shelby Temple, and Thomas Cronin (U. Queensland, U. Bristol, U. Maryland Baltimore Co.)
11:30	SY52	The evolution of polarization vision in stomatopods: Molecules, signaling, and behavior	**Megan L. Porter**, Nicholas W. Roberts, Roy L. Caldwell, Justin Marshall, and Thomas W. Cronin (U. Maryland Baltimore Co., U. Bristol, U. California Berkeley, U. Queensland)

FRIDAY, AUGUST 10

PARTICIPANT SYMPOSIA

PARTICIPANT SYMPOSIUM 1: MOTOR AND SENSORIMOTOR PROCESSING Chair: Alan Roberts (U. Bristol) Colony Ballroom			
10:00	SY53	The core of crawling: Analysis of fictive motor patterns in the isolated Drosophila larval ventral nerve cord	**Stefan R. Pulver**, Timothy G. Bayley, Adam L. Taylor, Jimena Berni, Michael Bate, and Berthold Hedwig (HHMI Janelia Farm and U. Cambridge)
10:30	SY54	Dendritic membrane properties influence multimodal integration for fast behavioral decision	**Violeta Medan**, Heike Neumeister, and Thomas Preuss (Hunter College and U. Buenos Aires)
11:00	SY55	Making tadpole escape unpredictable: From behaviour to neurons	**Edgar Buhl**, Stephen R. Soffe, Michael Hull, and Alan Roberts (U. Bristol and U. Edinburgh)
11:30	SY56	Motor responses to mechanical deflections of individual neuromasts of the lateral line system in larval zebrafish (*Danio rerio*)	**Melanie Haehnel** and James C. Liao (U. Florida)

PARTICIPANT SYMPOSIUM 2: ATTENTION, LOCALIZATION, AND ALARM Chair: Ana Silva (Universidad de la República) Prince George's Room			
2:00	SY57	The role of pressure-difference receiver ears in alligator sound localization	**Hilary S. Bierman** and Catherine E. Carr (U. Maryland)
2:30	SY58	Aging brains and social behavior in an invertebrate model: Neuromodulation and neuroanatomy of task attendance across the worker lifespan of the ant *Pheidole dentate*	**Ysabel M. Giraldo**, Adina Rusakov, Adrianna Kordek, and James F. Traniello (Boston U.)
3:00	SY59	Towards elucidating the phenomenon of alarm response in fish	**Ajay S. Mathuru** and Suresh Jesuthasan (Natl. U. Singapore)
3:30	SY60	Spatial representation of odorant valence in an insect brain	**Markus Knaden**, Antonia Strutz, Jawaid Ahsan, Silke Sachse, Kathrin Steck, and Bill S. Hansson (Max Planck Soc.)

FRIDAY, AUGUST 10

PARTICIPANT SYMPOSIUM 3: AUDITION AND MECHANOSENSATION Chair: Annemarie Surlykke (U. Southern Denmark) Hoff Theater			
2:00	SY61	A comparison of active hearing in male and female *Aedes (Stegomyia) aegypti*, the dengue-fever mosquito	**Kathleen M. Lucas** and Daniel Robert (U. Bristol)
2:30	SY62	Auditory brainstem response evoked by clicks of an echolocating harbour porpoise approaching a target	**Meike Linnenschmid**t, Magnus Wahlberg, and Janni Damsgaard-Hansen (U. Southern Denmark)
3:00	SY63	Same prey, different strategies: How sensory morphology and behavior differ between two species of Lake Malawi cichlids	**Margot A. Schwalbe** and Jacqueline F. Webb (U. Rhode Island)
3:30	SY64	No pain, big gain: Coevolution between bark scorpion pain-inducing toxins and grasshopper mouse nociceptors	**Ashlee H. Rowe**, Yucheng Xiao, Matthew Rowe, Theodore Cummins, and Harold Zakon (U. Texas)

PARTICIPANT SYMPOSIUM 4: VISUAL PROCESSING Chair: Thomas Cronin (U. Maryland Baltimore Co.) Colony Ballroom			
2:00	SY65	Predictive response facilitation to moving targets in an insect neuron	**James R. Dunbier**, Steven D. Wiederman, and David C. O'Carroll (U. Adelaide)
2:30	SY66	Two distinct visual microcircuits required for figure-ground discrimination in flies	**Jessica L. Fox**, Ross G. Kelley, Jacob W. Aptekar, Camilla Larsen, and Mark A. Frye (U. California Los Angeles)
3:00	SY67	Neural control of dynamic structural coloration in squid iridophores	**Trevor J. Wardill**, Paloma T. Gonzalez Bellido, Robyn Crook, and Roger T. Hanlon (Marine Biol. Lab., Woods Hole)
3:30	SY68	Visual learning and spatial orientation in the whirligig beetle *Dineutus sublineatus*	**Chan Lin** (U. Arizona)

LIST OF POSTER TOPICS

Session I – Monday, Aug 6 (PO1-195)		Session II – Wednesday, Aug 8 (PO196-389)	
Topic	**Poster Code**	**Topic**	**Poster Code**
Anatomy & Neuroanatomy	PO1-2	Circadian Rhythms	PO196-200
Cellular Properties	PO3-6	Cognition	PO201-202
Communication I	PO7-16	Communication II	PO203-212
Computation	PO17-18	Computational Modeling	PO213-216
Development	PO19-21	Genes and Behavior	PO217-222
Ecology	PO22-23	Hormones and Sex Differences	PO223-225
Evolution	PO24-30	Learn., Mem. & Behav. Plasticity II	PO226-240
Learn., Mem. & Behav. Plasticity I	PO31-46	Motor Systems II	PO241-254
Motor Systems I	PO47-60	Novel Tools and Methods	PO255-257
Neuromodulation	PO61-74	Orientation and Navigation II	PO258-271
Orientation and Navigation I	PO75-88	Sensorimotor Integration II	PO272-295
Sensorimotor Integration I	PO89-112	Sensory: Audition II	PO296-320
Sensory: Audition I	PO113-136	Sensory: Electrosensory II	PO321-330
Sensory: Electrosensory I	PO137-150	Sensory: Mechanosensation	PO331-340
Sensory: Vision I	PO151-181	Sensory: Olfaction and Taste	PO341-357
Social Behavior	PO182-195	Sensory: Vision II	PO358-389

POSTER SESSION I

Authors	Abstract title	Poster
Anatomy and Neuroanatomy		
Cristian Gutierrez-Ibanez, Andrew N. Iwaniuk, Thomas J. Lisney, Douglas R. Wylie	*Is activity pattern reflected in the relative size of visual pathways in owls (Aves: Strigiformes)?*	PO1
Annie Park, Priyanka Gokhale, Catherine Carr, Gerald Borgia, Andrew Iwaniuk	*Interspecific variation in brain volume among bowerbird species*	PO2
Cellular Properties		
Xiaoling Gu, Yehuda Ben-Shahar	*Non-neuronal olfactory sensory functions to human pulmonary neuroendocrine cells*	PO3
Bethany Peterson, Thomas Park, John Larson	*Blunted neuronal calcium response to hypoxia in naked mole-rat hippocampus*	PO4
Matthew Pinch, Michael McDowell, Robert Güth, Graciela Unguez	*Metabolic profiles of myogenic tissues with distinct electrical activation patterns in the gymnotiform electric fish,* Sternopygus macrurus	PO5
Kristin Elizabeth Spong, Genevieve Rochon-Terry, R. Meldrum Robertson	*Cellular mechanisms underlying stress-induced coma in the CNS of the locust* (Locusta migratoria)	PO6
Communication		
Sabrina S. Burmeister, Veronica Rodriguez Moncalvo, Karin S. Pfennig	*Diet and mate choice cues affect central catecholamine levels in a species with condition-dependent mate choice*	PO7
Caitlin Field, Christopher B. Braun	*The role of a chirp-like signal in the weakly electric fish* Steatogenys sp.	PO8
Jessica L. Hanson, Laura M. Hurley	*Females influence male mouse ultrasonic courtship vocalizations*	PO9
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Molly Corinne Womack, Jakob Christensen-Dalsgaard, Christian Brandt, Kim Hoke	*Linking mate choice to hearing and ear structure in* Engystymops (Physalaemus) petersi	PO195

POSTER SESSION II

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Circadian Rhythms		
Anat Barnea, Joseph Terkel, Shay Henry Hornfeld	*First evidence that proliferation in the adult avian brain follows a diurnal cycle*	PO196
Mike H. Huynh, James Alan Murray, Gurinder Singh, Altha Wong	*Visible light increases locomotor activity but does not influence body orientation or crawling direction of the nudibranch mollusk* Tritonia diomedea	PO197
Lauren E. Kirouac, Amanda A. Naimie, Kimberly Bixby, Winsor H. Watson, James M. Newcomb	*Circadian rhythm of locomotion in the nudibranch mollusc* Melibe leonina	PO198
Adriana Migliaro, Ana Silva	*The role of AVT in the modulation of the circadian rhythmicity of EOD basal rate in South American weakly electric fish*	PO199
Julia Schulze, Thomas Schendzielorz, Monika Stengl	*Role of myoinhibitory peptides in the light entrainment pathway to the circadian pacemaker of the Madeira cockroach (*Rhyparobia maderae*)*	PO200
Cognition		
Christopher T. Noto, Kevin K. Ohlemiller, Jagmeet S. Kanwal	*Neural coding of call pitch and syllable type in the auditory cortex of mustached bats*	PO201
Clint J. Perry, Andrew B. Barron	*Honey bees avoiding decisions: Evidence for metacognition in an invertebrate?*	PO202
Communication		
Michael S. Caldwell, Mark A. Bee	*Sound source localization in noise: Open-loop and closed-loop tests with Cope's gray treefrog (*Hyla chrysoscelis*)*	PO203
Kristina Gebhardt, Miriam Böhme, Gerhard von der Emde	*Electrocommununication in social groups of weakly electric fish: A comparison of* Mormyrus rume *and* Marcusenius altisambesi *(Mormyridae, Teleostei)*	PO204
Elizabeth Katherine Heisler, J. Matthew Kittelberger	*Both D1- and D2-like receptors contribute to dopamine-induced inhibition of vocal production in the midbrain periaqueductal gray of a teleost fish*	PO205
Jagmeet S. Kanwal, Christopher T. Noto, Kevin K. Ohlemiller	*Social calls exhibit a distributed consensus map in the auditory cortex of mustached bats*	PO206
Archer Freni Larned, Gerald Borgia, Jean-Francois Savard	*Male satin bowerbirds use sunlight to illuminate decorations to enhance mating success*	PO207

Elizabeth Leininger, Darcy Brisbane Kelley	*The evolution of simplicity in advertisement calls of African clawed frogs (*Xenopus*)*	PO208
Bernard Lohr	*Song patterning, output, and function in the grasshopper sparrow*	PO209
Mario Penna, Felipe N. Moreno-Gómez, Nelson Velásquez	*Propagation and degradation of natural anuran calls in the temperate austral forest*	PO210
Laura Quintana, Erik Harvey-Girard, Daniel Lorenzo, Carolina Lescano, Leonard Maler, Omar Macadar	*Variations in the glutamatergic system underlying seasonal communication signals*	PO211
Michael Reichert, Carl Gerhardt	*Effects of competition on call timing strategies in the gray treefrog,* Hyla versicolor	PO212
Computational Modeling		
Ikkyu Aihara, Takeshi Mizumoto, Takuma Otsuka, Hiromitsu Awano, Hiroshi G. Okuno, Kazuyuki Aihara	*Possible functions of call alternation in frog choruses*	PO213
Francesco Guarato, James Windmill, Tony Gachagan	*Directional properties of bat ears for target localization*	PO214
DaeEun Kim, Seung-Eun Yu	*Burrow-centered localization in surveillance behavior of fiddler crabs*	PO215
Nicholas Szczecinski, Alexander Lonsberry, Roger Quinn	*CPG stability characterization by a numerical modified Floquet technique*	PO216
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Chihiro Mori, Kazuhiro Wada	*An inherited genetic program for acquisition of species-specific vocal pattern in songbird*	PO217
Sathish K. Raja, Björn Brembs	*Identification of neural circuits required for spontaneous behavioral variability*	PO218
Atsushi Ugajin, Taketoshi Kiya, Takekazu Kunieda, Masato Ono, Tadaharu Yoshida, Takeo Kubo	*Neural activity in the brains of the Japanese worker honeybees involved in a hot defensive bee ball reflects thermal stimuli processing*	PO219
Kazuhiro Wada, Masahiko Kobayashi, Wan-Chun Liu	*Epigenetic gene expression dynamics induced by singing in a critical period of vocal learning*	PO220
Takayuki Watanabe, Hitoshi Aonuma	*Molecular basis of the biogenic amine system in the field cricket* Gryllus bimaculatus	PO221
Xingguo Zheng, Yehuda Ben-Shahar	*The role of DEG/ENaC subunit ppk8 in regulating neuronal excitability in* Drosophila melanogaster	PO222
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Eva Kristin Fischer, Rayna Michelle Harris, Hans A. Hofmann, Kim L. Hoke	*Exposure to predation across different time scales alters cortisol levels in guppies*	PO224

Jacquelyn Petzold, G. Troy Smith	*Androgens regulate differences in chirp duration in the weakly electric fish* Parapteronotus hasemani	PO225
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Hidetoshi Amita, Toshiya Matsushima	*Long-term modification of choice impulsiveness by competitive foraging and the medial striatum / nucleus accumbens of domestic chicks*	PO226
Sarah Bella, Stephanie Gordon, Marie C. Pizzorno, Emily Ralen, Calvin Tracy, Elizabeth Wiewiorowski, Hannah Young, Elizabeth Capaldi Evans	*Does injection with Deformed Wing Virus influence avoidance learning by honey bees?*	PO227
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Aya Fujioka, Takashi Fujioka, Ryosuke Tsuruta, Tomonori Izumi, Shunji Kasaoka, Koji Matsuo, Yoshifumi Watanabe, Tsuyoshi Maekawa	*Effects of a constant light environment on hippocampal system in mice*	PO230
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Heather Mallory	*Timing of environmental enrichment affects learning performance in an insect,* Acheta domesticus	PO234
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Makoto Mizunami, Yukihisa Matsumoto, Daisuke Hirashima	*Analysis and modeling of sensory preconditioning in crickets*	PO236
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Avner Wallach, Asaf Gal, Shimon Marom	*Interpreting response fluctuations in neurons, networks, and behavior*	PO240
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Donald H. Edwards, Bryce Chung, Daniel Cattaert	*Reflex reversal and positive feedback in the generation of walking motor patterns*	PO242
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James C. Liao	*The effect of flow speed and body length on swimming kinematics of rainbow trout in a vortex street*	PO244
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Karen A. Mesce, Kevin M. Crisp, Amy J. Shafqat, Christian W. Nagel, Joshua G. Puhl	*Steps and strides in understanding how a dopamine-regulated locomotor behavior is organized in the medicinal leech*	PO246
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Aaron Andrew Simmons	*Responses to postural perturbations in decapod crustaceans*	PO249
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Karen J. Thompson	*Inhibition of a CPG: Investigating descending control*	PO251
Barry Andrew Trimmer, Samuel Vaughan, Huai-Ti Lin	*Ground reaction forces during caterpillar climbing*	PO252
Nikolaus F. Troje, Andres M. Kroker, Kate Bobyn, Qingguo Li	*Function and biomechanics of head-bobbing in pigeons*	PO253
HongYan Zhang, Stephen Paul Currie, Laurence Picton, Keith Thomas Sillar	*Locomotor network performance controls future network output in* Xenopus *frog tadpoles*	PO254
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Angelique Christine Paulk, Bruno Van Swinderen	*Whole brain recordings reveal physiologically separable endogenous oscillations in* Drosophila melanogaster	PO256
Martin Peek, Gwyneth Card	*High-throughput measurement and analysis of Drosophila escape behavior*	PO257

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Basil El Jundi, Jochen Smolka, Emily Baird, Marcus Byrne, Marie Dacke, Eric Warrant	*Sky compass orientation in diurnal and nocturnal dung beetles*	PO259
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Kandice Fero, Antonio Fernandes, Aristides Arrenberg, Sadie Bergeron, Wolfgang Driever, Harold Burgess	*Dark photokinesis behavior in larval zebrafish does not require the eyes or the pineal*	PO261
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Ana Amador, Yonatan Sanz Perl, Gabriel B. Mindlin, Daniel Margoliash	*Motor coding unveiled by a low dimensional model of song production*	PO273
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Irene Helen Ballagh, Darcy B. Kelley	*Sex differences in the control of vocal pattern-generating circuitry in* Xenopus laevis	PO276
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Paul C.P. Curtin, Samantha S. Cohen, Violeta Medan, Shushanik Karapetyan, Heike Neumeister, Thomas Preuss	*Discrete uni- and multimodal mechanisms control sensorimotor gating of goldfish startle*	PO279
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Benjamin Goller, Douglas L. Altshuler	*Hummingbird flight response to moving visual patterns*	PO281
Franz Goller, Tobias Riede	*Control of fundamental frequency in zebra finch vocal behavior*	PO282
Peiyuan Guo, Alan Pollack, Roy Ritzmann	*The role of the central complex in antenna guided orientation behavior in tethered walking cockroaches*	PO283
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Benjamin J. Hardcastle, Daniel A. Schwyn, Kit D. Longden, Karin Bierig, Reiko J. Tanaka, Holger G. Krapp	*Ocellar contributions to gaze control: A behavioural linear systems analysis in the blowfly*	PO285
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Stefan Schöneich, Berthold Hedwig	*Corollary discharge modulation of wind-sensitive interneurons in the singing cricket*	PO291
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Jeremy Richard Corfield, Andrew N. Iwaniuk	*Low frequency specialization in the inner ear of the Ruffed Grouse (*Bonasa umbellus*)*	PO297
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Zhongmin Lu, Alexandra A. DeSmidt	*Early Development of Hearing in Zebrafish*	PO303
Silvio Macias, Julio C. Hechavarría, Marianne Vater, Emanuel C. Mora, Manfred Koessl	*Blurry topography in the cortical target-distance maps of bats*	PO304
Ikuo Matsuo, Takuma Takanashi	*Echolocation of flying insects by using the frequency modulated sound*	PO305
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Elizabeth Nicholls, Adrienne Richter-Krefft, Natalie Hempel de Ibarra	*Pollen compounds inhibit olfactory learning in honeybees*	PO350
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Jack Gray, Paul Dick	*The velocity of objects traveling along compound trajectories affects firing properties of an identified locust motion-sensitive interneuron*	PO360
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Jan M. Hemmi, Timon vanAsten	*Predator avoidance: The highly flexible and context dependent escape decisions in fiddler crabs*	PO364
Martin John How, Justin Marshall	*Modelling sensitivity to polarised light*	PO365
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Vanessa Kassing, Jacob Engelmann, Rafael Kurtz	*Calcium imaging in the optic tectum of the adult zebrafish (*Danio rerio*)*	PO367
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Abner B. Lall	*Spectral tuning between vision and bioluminescence in beetles: An example of von Uexkull's Functional Cycle*	PO369
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Juliette Elizabeth McGregor, Shelby E. Temple, Julian C. Partridge, Nicholas W. Roberts	*An imaging microspectrophotometer (iMSP)*	PO372
Hanno Gerd Meyer, Anne-Kathrin Warzecha, Jens Peter Lindemann, Martin Egelhaaf	*Pattern-dependent response modulations in motion-sensitive interneurons induced by natural environments*	PO373
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David O'Carroll, Douglas Bolzon, Karin Nordström	*Bar cells: A novel class of insect feature detector*	PO376
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