

The 31<sup>st</sup> Annual East Coast Nerve Net  
April 1-3, 2005

Friday p.m., April 1

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*5:30 pm Welcome reception, Swope. Spirits, beer, wine, soft drinks, and hors d'oeuvre provided.*

*Reminder: please set up your posters before the Grass lecture.*

*6:30 pm Dinner*

*8:00 pm Grass Foundation Lecture*

**Leslie Vosshall  
The Rockefeller University**

***Genetics of Olfactory Perception***

*9:00-11:00 Post-lecture get-together, poster area, Swope. Beer, wine, and soft drinks provided.*

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The Organizing Committee is extremely grateful for the patronage of the Grass Foundation



The Grass Foundation Lecture, Sunday Symposium and all talks will take place in the Lillie Auditorium

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Saturday a.m., April 2

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**7:00-8:15**      *Breakfast in Swope*

**8:30-10:15**    *Behavior and Motor Control*

8:30            THE EFFECT OF SOCIAL EXPERIENCE ON POSTURAL CONTROL IN  
CRAYFISH LEGS

Fadi A. Issa, Daniel Cattaert, Donald H. Edwards. Georgia State University,  
University of Bordeaux

8:45            SOCIAL STATUS IN CRAYFISH ALTERS THE RESPONSE TO CAPTURED  
CONSPECIFICS

Jens Herberholz, Marjorie Sen, Catherine McCurdy, Donald Edwards. Georgia  
State University

9:00            SMELLING ONE'S ENEMY: ECDYSONES ORCHESTRATE AGONISTIC  
INTERACTIONS IN HOMARUS AMERICANUS

Debra Coglianese, Stuart Cromarty, G. Kass-Simon. University of Rhode Island.

9:15            THE BIOMECHANICS OF MUSCLE IN A SOFT-BODIED INSECT

William A. Woods Jr., Barry A. Trimmer. Tufts University

9:30            BUILDING A CNS FOR THE LOBSTER ROBOT WITH ELECTRONIC  
NEURONS

Joseph Ayers, Allen Selverston, Alexander Volkovski, Nikolai Rulkov, Yong-Bin  
Kim. North Eastern University

9:45            A BLOW-BY-BLOW ANALYSIS OF OCTOPAMINERGIC MODULATION OF  
AGGRESSION IN DROSOPHILA

Mary Grace Savella, Sarah Certel, Edward Kravitz. Harvard Medical School

10:00          MALE-SPECIFIC FRUITLESS IS REQUIRED FOR MALE-SELECTIVE  
PATTERNS OF AGGRESSION

Steven P. Nilsen, Edward A. Kravitz. Harvard Medical School

**10:15-10:45**    *Coffee Break*

**10:45-12:15**    *Central Pattern Generators and Modulation*

10:45          DIFFERENT MODULATORY INPUTS RECRUIT DIFFERENT CPGS TO  
ELICIT SIMILAR MOTOR PATTERNS

Shari R. Hertzberg, Michael P. Nusbaum. University Of Pennsylvania

11:00          MECHANOSENSORY EXCITATION OF RHYTHMIC MOTOR ACTIVITY

Rebecca C Seaman, Michael P. Nusbaum. University of Pennsylvania

- 11:15      SENSORY REGULATION OF RHYTHMIC MOTOR ACTIVITY VIA  
PRESYNAPTIC INHIBITION  
Nicholas DeLong, Farzan Nadim, Michael Nusbaum. University of Pennsylvania
- 11:30      NEURONAL CIRCUIT MODULATION REQUIRES ACTIVATION OF ONLY  
1 OF 4 TARGET NEURONS  
Matthew Kirby. University of Pennsylvania
- 11:45      EFFECT OF NOVEL NEUROPEPTIDE IN THE STOMATOGASTRIC  
GANGLION AND CARDIAC GANGLION OF THE CRAB CANCER  
BOREALIS  
Nelson Cruz, Kimberly Kutz, Lingjun Li, Eve Marder. Brandeis University,  
University of Wisconsin-Madison
- 12:00      SYNAPTIC RESONANCE IN THE STOMATOGASTRIC GANGLION  
Vahid Tohidi, Farzan Nadim. Rutgers University

**12:15-1:15      *Lunch***

Saturday p.m., April 2

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**1:30-2:45      *Ion Channels and Synapses***

- 1:30      VISUALIZING AN 8-DIMENSIONAL CONDUCTANCE SPACE  
Adam L. Taylor, Timothy J. Hickey, Eve Marder. Brandeis University
- 1:45      EFFECT OF ELECTRICAL COUPLING ON IONIC CURRENT MEASUREMENTS  
Pascale Rabbah, Jorge Golowasch, Farzan Nadim. Rutgers University.
- 2:00      CORRELATIONS BETWEEN INTRINSIC MEMBRANE CONDUCTANCES AND  
ION CHANNEL EXPRESSION IN INDIVIDUAL NEURONS  
David Schulz, Jean-Marc Goillaud, Eve Marder. Brandeis University
- 2:15      CONVERGENCE OF NEURONAL ACTIVITY PHENOTYPE IN ADULT  
ISOLATED NEURONS RESULT FROM SPONTANEOUS OR INDUCED  
ACTIVITY VIA A COMMON IONIC MECHANISM  
Rodolfo Haedo, Jorge Golowasch. Rutgers University, New Jersey Institute of  
Technology
- 2:30      DUAL INHIBITORY INNERVATION OF THE LOBSTER DACTYL OPENER  
MUSCLE  
Joseph Camacho, Mary Kate Worden. University of Virginia

**2:45-3:00      *Break (no coffee)***

**3:00-4:00**      *Transmitters and Signaling*

- 3:00      THE OCTOPAMINERGIC SIGNALING PATHWAY MEDIATES  
THERMOPROTECTION OF THE LOCUST VENTILATORY MOTOR PATTERN  
Gary Armstrong, R.M. Robertson. Queen's University
- 3:15      SEROTONERGIC ENHANCEMENT OF CALCIUM RELEASE FROM INTERNAL  
STORES UNDERLIES THE POTENTIATION PHASE OF THE SPIKE TIMING-  
DEPENDENT NEUROMODULATION IN THE TRITONIA SWIM CPG  
Akira Sakurai, Robert J. Calin-Jageman, Paul S. Katz. Georgia State University
- 3:30      DIFFERENT INTRACELLULAR PATHWAYS MEDIATE THE EFFECTS OF A  
NEUROHORMONE VERSUS ITS ACTIONS DURING NEURONAL RELEASE  
Debra Wood. Case Western Reserve University
- 3:45      BIOGENIC AMINE RELEASE FROM THE DROSOPHILA BRAIN  
Joanne Yew, Sarah Certel, Edward Kravitz. Harvard Medical School

**4:00-6:00**      *Posters and refreshments in Swope*

**6:00-7:00**      *Cocktails in Meigs room*

**7:00-8:30**      *Dinner in Swope*

**9:00-11:00**      *Ed and Barry's Annual Exercise in Swank Sociality, Poster Area. Margaritas, beer,  
wine, soft drinks provided.*

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Sunday a.m., April 3

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**7: 30am**      *Breakfast Swope Center*

*Participants are reminded that Swope check out time is 10:00 a.m.*

**9:00 -11:00**    *Sunday Symposium*

***Sensational Invertebrates: Recent Advances in Sensory Neurobiology***

**Oxygen sensing in *C. elegans***

**Jesse Gray, Rockefeller**

**The evolving model of mechanosensation in *C. elegans***

**Lesley Emtage, Rutgers University**

**"Can you smell that?" Modulation of sensory signaling in *C. elegans***

**Anne Hart, Massachusetts General Hospital**

**Feeling the Heat: Thermotaxis in *Drosophila***

**Paul Garrity, MIT**

**11:00-11:30**    *ECNN Business Meeting*

**11:30-1:00**    *Lunch Swope Center*

*End of the 2005 East Coast Nerve Net*

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## Posters

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CONDITIONAL RHYTHMICITY AND SYNCHRONIZATION IN A BILATERAL PAIR OF MOTOR NEURONS.

Geidy E. Serrano, Mark M. Miller. University of Puerto Rico

MODELING LOBSTER PYLORIC MUSCLE FORCE OUTPUT OBTAINED IN RESPONSE TO SPIKING NEURAL INPUT

Boban P. Abraham, Kevin H. Hobbs, Jeff B. Thuma, Scott L. Hooper. Ohio University

MODELING RECOVERY OF RHYTHMIC ACTIVITY: HYPOTHESIS FOR THE ROLE OF A CALCIUM PUMP

Yili Zhang, Jorge Golowasch. NJIT and Rutgers University

LONG-TERM REGULATION OF CRAB PYLORIC NETWORK BY GABA,  
Rosa Rodriguez, Jorge Golowasch. Rutgers University and NJIT

VAL SIFAMIDE ENVOKES NOVEL PATTERN IN PYLORIC NEURON IC,  
Pieter Scheerlinck, Patsy Dickinson. Bowdoin College

ECDYSONE RECEPTOR PERTURBANCE IN ADULT MALE FRUIT FLIES RESULTS IN ABNORMAL BEHAVIORAL PHENOTYPES.

Geoffrey Ganter, Jacob Merriman, Mark Salmon, Kelsey Walton, Edward Kravitz. University of New England

QUANTITATIVE ANALYSIS OF COMPENSATORY REGENERATION IN AUDITORY INTERNEURONS.

Suen Wong, Hadley Wilson Horch. Bowdoin College

REGULATION OF C. ELEGANS CHEMOSENSORY BEHAVIOR BY BIOGENIC AMINES

Michael Chao, Hidetoshi Komatsu, Hana S. Fukuto, Heather M. Dionne, Anne C. Hart. Massachusetts General Hospital Center for Cancer Research

IS NITRIC OXIDE A MODULATOR OF HEART AND GILL VENTILATION RATES IN VIVO?

Simeon Dyck. Brock University

INFLUENCE OF ADAPTATION ON INFORMATION TRANSFER BY SENSORY AFFERENTS

Bjoern Ch. Ludwar, Ralph A. DiCaprio. Ohio University

DIFFERENTIAL PARTICIPATION OF NEURON B64 IN INGESTIVE AND EGESTIVE FEEDING MOTOR PROGRAMS OF APLYSIA

Jin-Sheng Wu, M. Due, J. Jing, A. Proekt, K. R. Weiss. Mount Sinai Medical School

EFFECTS OF OCTOPAMINE ON AGGRESSION HIERARCHIES IN CRICKETS

Christina Woodward, Laura Welsh, Hadley Horch. Bowdoin College

VAL-SIFAMIDE ACTIVATES THE PYLORIC PATTERN GENERATOR IN THE AMERICAN LOBSTER, HOMARUS AMERICANUS

Braulio Peguero, Pieter Scheerlinck. Bowdoin College

INTERACTION OF SHORT-TERM DYNAMICS OF SPIKE-MEDIATED AND GRADED TRANSMISSION IN A SINGLE SYNAPSE

Lian Zhou, Robert LoMauro, Farzan Nadim. Rutgers University

GAP-JUNCTION CONDUCTANCE DETERMINES AN OPTIMAL COUPLING DIAMETER IN PASSIVE FIBERS

Jorge Golowasch, Farzan Nadim. New Jersey Institute of Technology

MODULATION OF THE CRAB CARDIAC SYSTEM: ASSESSMENT WITH CONTROLLED STIMULUS TRAINS.

Timothy Fort, V. Brezina, M. W. Miller. Institute of Neurobiology, University of Puerto Rico

VARIABILITY OF CENTRAL MOTOR COMMANDS, FILTERED THROUGH A NETWORK OF PERIPHERAL NEUROMUSCULAR MODULATION, OPTIMIZES FUNCTIONAL PERFORMANCE IN A VARIABLE ENVIRONMENT IN MODELS OF APLYSIA FEEDING BEHAVIOR

Vladimir Brezina, Charles C Horn, Klaudiusz R Weiss. Mt. Sinai School of Medicine

INTRABURST VARIABILITY OF MOTOR NEURON SPIKE TIMING SHAPES CONTRACTIONS OF THE ARC MUSCLE OF APLYSIA

Vladimir Brezina, Yuriy Zhurov, Klaudiusz R Weiss. Mt. Sinai School of Medicine

THE INITIATION OF SWIMMING OR CRAWLING BY A TRIGGER INTERNEURON IN THE MEDICINAL LEECH

Kathryn McCormick, Carolyn Graybeal, Lauren Tapyrik, Peter Brodfuehrer. Bryn Mawr College

EFFECTS OF ENDOGENOUS FMRFAMIDE-RELATED PEPTIDES AT A DROSOPHILA NEUROMUSCULAR JUNCTION

Julie Clark, A. Cull, R. Nichols, A.J. Mercier. Brock University

DOES THE DOMINANCE RANK OF PROCAMBARUS CLARKII ENHANCE ITS RESPONSE TO A MIRROR?

Holly Y. May, C. Czyrko, A.J. Mercier. Brock University

CHARACTERIZATION OF CHOLINE ACETYLTRANSFERASE IN APLYSIA CALIFORNICA

Vera Alexeeva, Klaudiusz R. Weiss, Ferdinand S. Vilim. Mount Sinai School of Medicine

PARALLEL INFORMATION CHANNELS FROM A CRUSTACEAN CHORDOTONAL ORGAN.

Ralph DiCaprio. Ohio University

STRUCTURE OF A ZEBRAFISH SEROTONIN RECEPTOR GENE.

Kala Pattar, Jesse Williams, Henning Schneider. DePauw University

EXPRESSION PATTERN OF A ZEBRAFISH SEROTONIN RECEPTOR,

Christine Heumann, Marisa Yochum, Henning Schneider. DePauw University

P-ELEMENT SCREEN FOR AGGRESSION MUTANT IN DROSOPHILA MELANOGASTER,

Yick-Bun Chan, Edward Kravitz. Harvard Medical School

TEMPERATURE DEPENDENT MODULATION OF LOBSTER CARDIAC ACTIVITY BY SEROTONIN

Mary Kate Worden, Syed Aman Qadri. University of Virginia

LONG-TERM SUPPRESSION OF COURTSHIP BEHAVIOR IN DROSOPHILA MELANOGASTER.

Jeff Donlea and Kathleen Siwicki. Swarthmore College

FEELING THE HEAT? A STUDY ON THE CONTRIBUTIONS OF SEROTONIN AND DOPAMINE ON AGGRESSIVE BEHAVIOR

Carol Lee, Eric Black, Edward A. Kravitz. Harvard University.

ASCENDING INPUT AFFECTS THE THERMOSENSITIVITY OF A LOCUST VISUAL INTERNEURON (DCMD)

Tomas Money, Correne DeCarlo, R. Meldrum Robertson. Queen's University

THE ROLES OF PHEROMONAL CUES IN CONDITIONING MALE FRUIT FLIES NOT TO COURT FEMALES

Tedi Asher, Stephanie A. Cross, Kathleen K. Siwicki. Swarthmore College

DOPAMINERGIC MODULATION OF FEEDING BEHAVIORS IN THE LEECH, HIRUDO MEDICINALIS.

Carolyn Johnson, Patsy Dickinson. Bowdoin College

HEAT SHOCK PRE-TREATMENT PROTECTS THE LOCUST VENTILATORY PATTERN GENERATOR AT HIGH TEMPERATURES BY INCREASING THE RATE OF EXTRACELLULAR POTASSIUM CLEARANCE.

Corinne Ivy Rodgers, Dr. R. Meldrum Robertson. Queen's University

CIRCATIDAL AND CIRCADIAN RHYTHMS OF LOCOMOTION IN LIMULUS POLYPHEMUS; ENTRAINMENT TO INUNDATION CYCLES IN BOTH A NATURAL AND ARTIFICIAL PHOTO-ENVIRONMENT.

Stephen J. Skinner, Christopher C. Chabot. Plymouth State University

IDENTIFICATION AND CHARACTERIZATION OF THE ORPHAN MYOMODULIN PRECURSOR IN APLYSIA.

Allyson Friedman, A. Proekt, J.V. Sweedler, L. Li<sup>2</sup>, V. Brezina<sup>1</sup>, Y. Zhurov<sup>1</sup>, V. Alexeeva, J.Jing. Mount Sinai School of Medicine

FLEXIBILITY IN THE *APLYSIA* FEEDING NETWORK IS ATTRIBUTABLE TO SPECIFIC INTERACTIONS BETWEEN HIGHER-ORDER NEURONS AND PATTERN GENERATOR INTERNEURONS

Jian Jing, Jinsheng Wu, Klaudiusz R. Weiss. Mount Sinai School of Medicine

COMPARING A PROJECTION-NEURON-ELICITED AND A NEUROMODULATOR-ELICITED GASTRIC MILL RHYTHM IN THE CRAB, *CANCER BOREALIS*: A MODELING STUDY

Nickolas Kintos, Farzan Nadim. New Jersey Institute of Technology

OPTICAL STIMULATION AND ACTIVITY RECORDING OF C. ELEGANS NEURONS

Gal Haspel, Hart, A. C. Harvard Medical School

ANALYSIS OF LARVAL LOCOMOTION IN DROSOPHILA MUTANTS WITH ALTERED BIOAMINE SYNTHESIS

Virginia Woods, Patricia Rivlin, Claudia Lutz, Ronald Hoy. Cornell University

AN OCTOPAMINE-DEFICIENT MUTATION CAN SUPPRESS SHAKER PHENOTYPES IN DROSOPHILA

Patricia Rivlin, Kristen Gawera, Jacob Krans, Ronald Hoy. Cornell University

NEUROMUSCULAR BASIS OF COURTSHIP SONG IN HAWAIIAN DROSOPHILA, JASON LEVINE,

Patricia K. Rivlin, Ronald R. Hoy. Cornell University

## Presenters

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### *Faculty*

Vladimir Brezina  
Joseph Ayers  
Jian Jing  
Debra Wood  
Geoffrey Ganter  
Jorge Golowasch  
Vera Alexeeva  
Ralph DiCaprio  
Mary Kate Worden

### *Graduate Students*

Shari R. Hertzberg  
Fadi A. Issa  
Vahid Tohidi  
Nicholas DeLong  
Gary Armstrong  
Matthew Kirby  
Nelson Cruz  
Pascale Rabbah  
Debra Coglianese  
Rodolfo Haedo  
Geidy E. Serrano  
Boban P. Abraham  
Yili Zhang  
Rosa Rodriguez  
Lian Zhou

Holly Y. May  
Tomas Money  
Corinne Ivy Rodgers  
Allyson Friedman  
Nickolas Kintos

### *Other*

Rebecca C Seaman

### *Postdoctoral Research Associates*

Adam L. Taylor  
William A. Woods Jr.  
Jens Herberholz  
Steven P. Nilsen  
David Schulz  
Joanne Yew  
Akira Sakurai  
Michael Chao  
Bjoern Ch. Ludwar  
Jin-Sheng Wu  
Timothy Fort  
Julie Clark  
Yick-Bun Chan  
Gal Haspel  
Patricia Rivlin

### *Undergraduates*

Mary Grace Savella  
Joseph Camacho  
Pieter Scheerlinck  
Suen Wong  
Simeon Dyck  
Christina Woodward  
Braulio Peguero  
Kathryn McCormick  
Kala Pattar  
Christine Heumann  
Carol Lee  
Tedi Asher  
Carolyn Johnson  
Stephen J. Skinner  
Virginia Woods  
Jason Levine

### *The Organizing Committee*

Kathleen Siwicki  
Barry Trimmer  
Jorge Golowasch  
Hadley Horch  
Mark Miller  
Jeff Thuma