



# Society for Invertebrate Pathology Newsletter

Volume 46 Issue 2

June, 2013

## Meeting Events:

### Sunday

Opening Mixer

### Monday

Founders' Lecture  
Plenary Symposium  
Concurrent Sessions  
Division Business Meetings

### Tuesday

Concurrent Sessions  
Carnegie Museum of Natural  
History Tour  
Riverfront 5K Evening Run-Walk  
Barbecue

### Wednesday

Concurrent Sessions  
Posters

### Thursday

Concurrent Sessions  
SIP Annual & Student Business  
Meetings  
Award Ceremonies and  
Banquet

### Friday

NEMASYM Workshop



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Dear SIP Colleagues,

June has arrived and soon August will come. August means the annual SIP meeting, a favorite event for many of us. The team in Pennsylvania (Nina Jenkins, Kelli Hoover and Matthew Thomas, and many others) is working hard to get everything organized, including logistics, rooms and scheduling. This is never easy. SIP meetings consists of symposia, contributed papers, poster sessions, workshops, plenaries, and social activities such as the banquet. Hard work is also done by the Awards Committee to select candidates for the different awards and by the division chairs to organize their symposia and division meetings. Several other committees have been planning and/or will be active during the meeting including the History Committee, Meetings Committee, Endowment and Financial Support Committee. Then, as usual, we will have the Council Meeting on Sunday and the Business Meeting on Thursday. But the SIP annual meetings really involve the major efforts of the entire SIP community. All of these events take place within few days, with problems that are often solved on the spot. It's a small miracle that SIP manages this every year!

A range of good traditions established over the years serve as cornerstones to the SIP meetings. That's a fine thing, I appreciate personally a lot that SIP pays attention to, for example, the Founder's Lecture and sometimes also contributions from the History Committee. The efforts from that committee, and especially by the chair Betty Davidson, over the past year to preserve the SIP archives were highly successful.

We should develop our society, try other activities and see if they are of use to the membership. This year we will try a new element: presenting of highlights of the year at the meeting. These highlights will cover the entire research area encompassed by the SIP. By this we hope that we all are inspired by an overview of both basic and applied highlights that are notable in areas other than our 'own'. I look forward to learning how this will work and how we can implement other meeting improvements over the coming years.

I assume that many of you have already registered, and I look forward to seeing you all. Before that, have a look at this newsletter. You can read about the superb program for our meeting in Pennsylvania and news about people and divisions. Our new web page will be launched soon. Lee Solter and several others, including Secretary Schmitt, have been hard working to get this new web design and structure to work.

A handwritten signature in blue ink that reads "Jørgen Eilenberg". The signature is stylized and includes a small triangle at the end of the last name.

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## Founders' Lecture Award



**Dr. Gary Blissard, Founders' Lecturer**

### Founders' Lecture by Dr. Gary Blissard

Dr. Gary Blissard studied entomology, insect pathology, and virology at Auburn University, University of California Riverside, and Texas A&M University. Dr. Blissard is a Professor of the Boyce Thompson Institute and an Adjunct Professor at Cornell University in the Department of Entomology, and the Department of Microbiology and Immunology. He served as Vice President of Research at the Boyce Thompson Institute from 2004-2009. He has published approximately 65 papers, mostly related to the biochemistry, molecular, and cell biology of baculoviruses and their interactions with host cells. He previously served as an associate editor of the *Journal of Invertebrate Pathology* and on the editorial board of *Virology* (1992-2009). He has served on several committees of the American Society for Virology and was elected and served on the ASV Council (2006-2009). He currently serves on the editorial board of the *Journal of Virology* (since 1999). He has been an active member of the Society for Invertebrate Pathology since 1980.

As an undergraduate at Auburn University, Gary's interests focused on many aspects of pathogen/parasite associations with various hosts. However, he developed a particular interest in insects, insect pathogens, and insect-associated microbes. After completing his undergraduate studies in 1976, he joined the Peace Corps and worked as a Citrus Entomologist in Belize, Central America. There, he worked on the biological control of the Mexican fruit fly, a serious pest of citrus. His work involved monitoring fruit fly populations, making recommendations to growers, and developing classical biological control with parasitoid wasps; all aimed at reducing chemical insecticide use in Belize. In 1979, following his Peace Corps service, Gary was accepted as a master's degree student in the laboratory of Dr. Brian Federici, a relatively new Assistant Professor of Insect Pathology at the University of California, Riverside. Under Brian's enthusiastic guidance, he thrived and focused his interests on insect physiology, development, and virology. There he met and worked with a number of scientists that had a substantial impact on his career, and many became great friends and future colleagues. These included Bill Dawson, Wendy Gelernter, Jeff Johnson, and Chris Lucarotti. His research at UCR focused on lepidopteran fatbody development using biochemistry and electron microscopy.

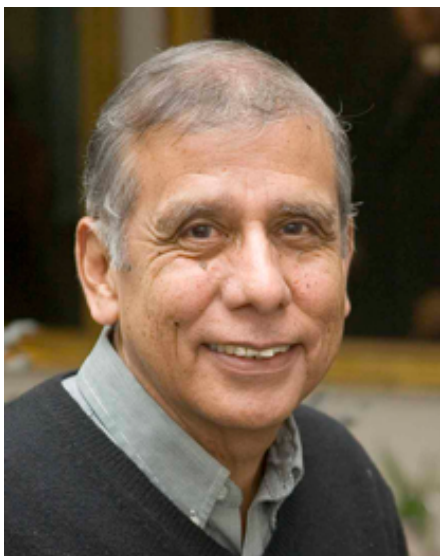
In 1982, Gary joined Dr. Max Summers group at Texas A&M as a Ph.D. student. There, he worked with Dr. Summers and Dr. Brad Vinson on some of the first studies to investigate the molecular biology of polydnaviruses - the "viruses" produced in the oviducts of parasitoid wasps. His work with the "Summers' polydnavirus group" showed that polydnaviruses encoded a distinct set of genes that were expressed only in the wasp's parasitized host. His studies focused on identifying, sequencing and characterizing those polydnavirus genes, and he also studied the segmented nature of the polydnavirus genome and the complex organization of genes within the genome. His Ph.D. studies were followed by a year of postdoctoral studies in the same lab, using the newly developed baculovirus expression system to study polydnavirus gene products. His years in the Summers lab were a time of excitement in insect virology, and he was stimulated and inspired by a number of exceptional and talented laboratory colleagues, which included such notable scientists as Gale Smith, Linda Guarino, David Theilmann, Mac Fraser, Don Jarvis, and Gerry Kovacs. In 1987, he moved to Oregon State University to work as a postdoc in the laboratory of Dr. George Rohrmann, studying baculovirus structural proteins. Later he received an NIH fellowship for his work there. With George Rohrmann, an exceptional mentor, he worked on several projects. During that period, he identified, sequenced, and analyzed the transcription of the envelope glycoprotein gene (*gp64*) of the virus *Orgyia pseudotsugata* MNPV. This early work laid the groundwork for future studies on the function of that protein.

In 1990, Gary accepted a tenure-track position and established a new lab at the Boyce Thompson

Institute (BTI) at Cornell University. At that time, Dr. Bob Granados headed the Plant Protection Program of the BTI, and because of their shared interests in baculovirus biology and pathology, he became a close colleague and collaborator with Bob during the following years. BTI included a number of significant insect pathology labs (such as those of Bob Granados, Don Roberts, Pat Hughes, and Alan Wood) and provided a rich environment for studies of insect pathogens. Initially, Blissard's lab focused on studies of baculovirus early gene transcriptional regulation. Later, his lab turned to studies of baculovirus late transcription, focusing on regulatory elements as well as analysis of viral knockouts of the so-called *late expression factor* genes. Shortly after his arrival at the BTI, his lab also began some of his most interesting and exciting work: studies of the structure and function of the major envelope glycoprotein, GP64. Inspired by important early work by Loy Volkman and Peter Faulkner, his lab was able to develop an experimental system for studies of GP64 function in isolation from the virus. Studies initially focused on understanding the mechanism of GP64-mediated membrane fusion, the event that merges viral and host membranes during viral entry. Later, they also generated a GP64 knockout virus and a complementing cell line: a system that permitted the expression of modified forms of GP64 on the virus particle. They subsequently identified a large variety of GP64 domains and amino acid positions that are important for virion binding, pH-activation of GP64 conformation change, membrane interactions, and viral assembly and egress from the surface of the infected cell. Work in his lab involved a number of extremely talented and resourceful research assistants, graduate students, and postdocs that include Scott Monsma, Tom Oomens, Jodie Mangor, Oliver Lung, Jeff Slack, Jian Zhou, Zhaofei Li, Yun-Ru Chen, and Sicong Dong. He also benefited enormously from his colleague, Bob Granados, who provided advice and support, as well as many penetrating discussions on pathology and virus-host interactions. He also collaborated with Bob on several projects aimed at developing new cell lines and tools for biotechnology. Many other innovative scientists at the BTI have provided a rich intellectual environment, and these include such notables as Ping Wang, Ray St. Leger, and most recently, visiting scientist Zhihong (Rose) Hu.

Recent and current studies in Gary's laboratory are focused in two areas: 1) whole transcriptome analysis of the baculovirus AcMNPV and transcriptome responses of host cells over the course of the infection cycle, and 2) studies of viral interactions and transport through polarized midgut epithelial cells of insects, using a variety of approaches and models to understand midgut trafficking of pathogenic and insect-vectoring viruses. In addition, Dr. Blissard is co-leader with Drs. Michael Kanost (Kansas State University) and Stephen Richards (Baylor College of Medicine) of a consortium that has recently sequenced the genome and transcriptome of the model lepidopteran insect, *Manduca sexta*.

As a long-time colleague and aficionado of Dr. Bob Granados' many accomplishments, Dr. Blissard was especially pleased and honored to be selected to give the Founder's Lecture that celebrates the many important contributions of Dr. Granados.



**Dr. Robert Granados,  
Founders' Honoree**

### **Founders' Lecture In Recognition of Dr. Robert R. Granados**

Professor Robert R. Granados, this year's Founder's Lecturer Honoree continues a long and distinguished career that includes many significant contributions to the fields of invertebrate pathology and invertebrate in vitro biology. He has served in leadership roles in various scientific society positions and as an early founding member and fifteenth President of the Society for Invertebrate Pathology.

Dr. Granados (Bob) was born on the 24<sup>th</sup> of September, 1937 in El Centro, California and was raised in the rural agricultural region known as the Imperial Valley. He attended Imperial Valley Junior College for two years (1955-57) and then attended the University of California, Davis campus where he majored in Entomology and Parasitology. He obtained his B.S. degree (cum laude) in 1960. He then went to graduate school at the University of Wisconsin, Madison where he obtained his M.S. (1962) and Ph.D degrees in Entomology with a minor in Plant Pathology (1964).

In 1964, Bob joined the faculty of the Boyce Thompson Institute (BTI) at

Yonkers, NY as an assistant scientist. Bob's early work at BTI involved the transmission and identification of leafhopper-borne plant diseases known as aster yellows virus and corn stunt disease. He pioneered the early studies on the *in vitro* culturing and identification of a new class of micro-organisms, later to be named Spiroplasmas.

Bob's research in invertebrate virology began with his studies of entomopoxviruses and baculoviruses at a cellular and molecular level. Early in his career, his research on poxviruses was important in showing that entomopoxviruses and vertebrate poxviruses were not only similar in structure, but had similar life cycles and pathologies, providing evidence that insect and mammalian viruses were evolutionary related. In the field of baculovirology, he provided significant novel findings that delineated the pathways by which nucleopolyhedroviruses and granuloviruses gain entry to their hosts via the midgut epithelium. In addition, Bob's research on granuloviruses resulted on the discovery of a class of metalloproteases, the enhancins, which assist and enhance virus entry through the midintestinal epithelium. Numerous granulovirus enhancins have now been reported from other laboratories and have also been used to engineer insecticidal rice plants in Japan.

Bob became interested in insect cell culture technology because these cells were essential for the study of insect viruses. Numerous insect cell lines from lepidopteran species were established by talented researchers in his laboratory and used for basic research studies and for biotechnological purposes. Bob's most significant contribution in invertebrate cell culture was the establishment of a *Trichoplusia ni* embryonic cell line that is currently used worldwide by academia, research institutes, and industry for the production of high levels of recombinant proteins using baculovirus expression vectors. This cell line is known commercially as "High Five Cells". Bob has seen his work applied in ways he never anticipated when he set out to study insect viruses in cell culture. The High Five Cells were used by the pharmaceutical companies, Medimmune and GlaxoSmithKline to produce and commercialize the first human cancer vaccine; a successful vaccine for cervical cancer in women. The vaccine was approved for worldwide use in 2007-2008. His research led to many discoveries that resulted in the approval of 41 national and international patents for his work on granulovirus enhancins and novel insect cell lines.

In addition to his scientific accomplishments Bob was active in promoting invertebrate pathology research and the development of insect pathogens as pest management tools by training students, postdoctoral associates and visiting scientists, and serving on scientific program committees, convening workshops, and organizing symposia in national and international meetings.

Bob also served science as an administrator in various positions. For 20 years (1977-97) he served as Director of the Biological Control and Plant Protection Programs at the BTI. These programs included over 20 research scientists and research assistants working primarily with invertebrate pathogens. Many of these scientists were or are members of the SIP. He also served as Vice-President and President for the Society for Invertebrate Pathology (1992-96), Section C Chairman, Entomological Society of America, and founding member of ESA's subsection on Insect Pathology and Microbial control. Bob was also an adjunct Professor in the department of Entomology at Cornell University. After retirement in 2003 he remained active at BTI as a marketing and licensing consultant in the Intellectual Property Office until 2010. He still remains active in providing guidance and research direction to BTI scientists in the area of insect cell culture technology.

During his career Bob received many awards in recognition for his research contributions to agriculture and biotechnology, the Boyce Thompson Institute, and service in professional societies. Some of these awards include: a) Appointed as the BTI Charles E. Palm Distinguished Endowed Chair; b) Elected as Fellow of the American Association for the Advancement of Science, Fellow of the Academy of Microbiology, Fellow of the Entomological Society of America, and Fellow of the Society for In Vitro Biology, c) The Novartis National Recognition Award in Entomology from the Entomological Society of America, d) Award of Distinction, College of Agriculture and Environmental Sciences, University of California, Davis, and e) Honorary member of the Society for Invertebrate Pathology.

Bob and his wife Johanna have been married for 47 years. They have three children and three grandchildren.

# 46<sup>th</sup> Annual Meeting of SIP in Pittsburgh, Pennsylvania USA

## Scientific Program

### FOUNDERS' LECTURE

Gary Blissard in Honor of Robert R. Granados

### PLENARY SYMPOSIUM

**Novel perspectives on the ecology and evolution of host-pathogen interactions**

Organized by Matt Thomas

- “Complexity in the Function and Evolution of Insect Immunity” Brian P. Lazzaro
- “Variation in heterogeneity of transmission helps maintain diversity in an insect viral pathogen” Arietta Fleming-Davies
- “Friendly competition: what happens to the "dilution effect" when hosts compete?” Spencer Hall
- Title to be Announced. Courtney Murdock

**August is summer-time in Pennsylvania!**

Average high temperature is 27°C/ 81°F and low temperature is 16°C/ 62°F. The average probability for precipitation is 43 % and can include thunder storms.

### DIVISIONAL SYMPOSIA

#### Bacteria Division

**Reflections on Bt Mode of Action**

Organized by Neil Crickmore

- “Post-binding events in the mechanism of action of *Bt* toxins and parallels with mammalian pore-forming toxins” Raffi V. Aroian
- “Learning the ABCs of Bt” David G Heckel
- Title to be Announced. Jean-Louis Schwartz
- “Structure/function studies reveal the evolution of pore-forming toxins in bacteria and mammals” Rodney Tweten

#### Diseases of Beneficial Invertebrates Division

**Pathogens to Control Populations of Invasive Aquatic Invertebrates**

Organized by Grant Stentiford and Stefan Jaronski

- “Exploration of potential microbial control agents for the invasive crayfish, *Orconectes virilis*” Elizabeth W. Davidson
- “Can aquatic invasive invertebrates be controlled by re-introduction to their native pathogens?” Grant Stentiford
- “Challenges in microbial control of invasive mosquitoes and lessons learned” James J Becnel
- “Development of a Microbial Control for Invasive Quagga and Zebra Mussels” Carolyn Link

#### Microbial Control Division

**Duking It Out - Interactions Between Introduced Microbial Pest Control Agents and Indigenous Microflora**

Organized by Stefan Jaronski and Pasco Avery

- “Plants and Fungal Pathogens of Invertebrates: Biological and Biotechnological perspectives” Luis V. Lopez-Llorca
- “Insect Pathogen-Indigenous Microbe Interactions in the Rhizosphere” Cindy Fuller
- “Determining the fate of introduced *Beauveria bassiana* GHA in agricultural fields and its impact on conspecific indigenous populations” Louela A. Castrillo

## Fungus Division

### Forty Years of ARSEF: Success of an Essential Germplasm Resource

Organized by John Vandenberg

- “Spreading culture: From a refrigerator to the whole world” Richard A. Humber
- “Importance of exploration to the success of ARSEF, an essential germplasm resource for entomopathogenic-fungi research” Donald W. Roberts
- “Genome-driven insights into the phylogeny, population biology and molecular ecology of *Beauveria* and *Metarhizium*” Stephen A. Rehner
- “Studies on host-pathogen interactions using isolates from the ARSEF collection” Raymond St. Leger
- “How does the ARSEF collection contribute to studies on ecology of insect pathogenic fungi?” Jørgen Eilenberg
- “The ARSEF collection and 40 years of microbial biocontrol with entomopathogenic fungi” Stephen P. Wraight

## Microsporidia Division

### Graduate Student Studies of Microsporidia and Other Protists

Organized by Carlos Lange and Susan Bjornson

- “Genetic architecture underlying variation in *Caenorhabditis elegans* host resistance to natural microsporidia infection” Keir M. Balla
- “Microsporidia and the two-spotted lady beetle *Adalia bipunctata* L.” Thomas Steele
- “Immune response of *Lymantria dispar* to naturally occurring intracellular pathogens” Gwyn L. Puckett
- “The potential use of a host specific biological treatment against locusts” Floris Schoeters
- “Studying the molecular and cellular evolution of intranuclear microsporidia in crabs” Dominic Wiredu Boakye

## Nematode Division jointly with NEMASYM

### Symbiont Contributions to Nematode Fitness

Organized by Patricia Stock and Heidi Goodrich-Blair

- “*Drosophila* transcriptional response to infection by *Heterorhabditis nematodes* and their mutualistic *Photorhabdus* bacteria” Ioannis Eleftherianos
- “Natural biology of antimicrobials in symbiotic *Xenorhabdus* species” Steven Forst
- “A systems biology level analysis of human host adaptation of the nematode symbiont *Photorhabdus asymbiotica*” Nick R. Waterfield
- “Carrying the Right Symbiont: How Nematode Competitive Success is Influenced by Bacterial Interactions” Farrah Bashey-Visser

## Virus Division

### Evolution of Traits and Host Usage by the Related Polydnnaviruses, Baculoviruses, Nudiviruses, and Salivary Gland Hypertrophy Viruses

Organized by Mike Strand, Elisabeth Herniou and Michel Cusson

- “Functional Studies on the Hytrosaviridae: a large dsDNA Non-occluded Virus Infecting Adult Diptera” Drion G. Boucias
- “Comparative genomics and evolution of baculoviruses, nudiviruses and bracoviruses” Annie Bézier
- “Mutualistic Polydnnaviruses Share Essential Replication Gene Functions with Pathogenic Ancestors” Gaelen R. Burke
- “A viral ancestor for the Virus-like particles of the ichneumonid wasp *Venturia canescens*” Anne-Nathalie Volkoff

## CROSS DIVISIONAL SYMPOSIA

### Diseases of Beneficial Insects and Virus Divisions

#### Insect Innate Immunity

Organized by Lorena Passarelli and Elke Genersch

- “Regulation of hemolymph protease cascades in the immune system of *Manduca sexta*” Michael R. Kanost
- “Defense responses of *Biomphalaria* to schistosomes” Eric (Sam) Loker
- “Multiple microbes and immunity in honey bees” Jay Evans
- “Antiviral defense in aphids” Bryony C. Bonning

### Nematodes and Microbial Control Divisions

#### Trait Stability and Improvement

Organized by Stefan Jaronski and David Shapiro-Ilan

- “Trait stability and improvement of bacterial insecticides” Brian A. Federici
- “Trait Stability Among the Entomopathogenic Fungi” Stefan T. Jaronski
- “Trait stability and improvement in entomopathogenic viruses: lessons learnt from baculoviruses” Johannes A. Jehle
- “Trait stability and improvement in entomopathogenic nematodes” David I. Shapiro-Ilan

### Fungus and Bacteria Divisions

#### Ecology of Entomopathogenic Co-Infections

Organized by Christina Nielsen-LeRoux and Helen Hesketh

- “Interactions between fungi in *Plutella xylostella* larvae - which parameters have the greatest influence on the outcome of dual inoculations?” Ariel W. Guzman-Franco
- “Exploiting entomopathogen co-infections for biological control: current status and future directions” Helen Hesketh
- “Bacterial-fungal interactions in *Caenorhabditis elegans*” Eleftherios Mylonakis
- The evolution of virulence with mixed intra- and inter-specific infections in honey bees” Svetlana Vojvodic

## WORKSHOPS

### Virus Division

#### Invertebrate Virus Discovery

Organized by Bryony Bonning

- “Deep sequencing technology for arthropod virus discovery” Sijun Liu

### Fungus Division

#### Workshop Title to be Announced

Organizer to be announced

- “Current status of phylogenetic reclassifications: Here today and gone tomorrow” Richard A. Humber

## NEMASYM

### Ecology of Nematode - Bacterium Association

Organized by Patricia Stock

- “Myxococcal multicellular development as a defense against nematode predation” John Dahl

### Microbial Control and Fungus Divisions

#### What's the Name of My Fungus

Organized by Nicolai vitt Meyling

- “Molecular tools for strain detection and population genetic analyses of *Metarhizium* and *Beauveria* spp.” Jürg Enkerli

Please bring items for the annual auction during the barbecue. The funds raised help support student awards and other development programs in the society. And it's a lot of fun!



## BUSINESS MEETINGS

- Monday 18:45 - 20:30 will have Microbial Control, Diseases of Beneficial Insects, Nematodes, and Microbial Division Business Meetings.
- Wednesday 18:30 - 20:30 will have Virus, Bacteria, NEMASYM and Fungus Division Business Meetings.
- SIP Annual Business Meeting will be on Thursday 10:30 - 12:30.

*In addition, there will be concurrent scientific sessions with short oral presentations and posters*

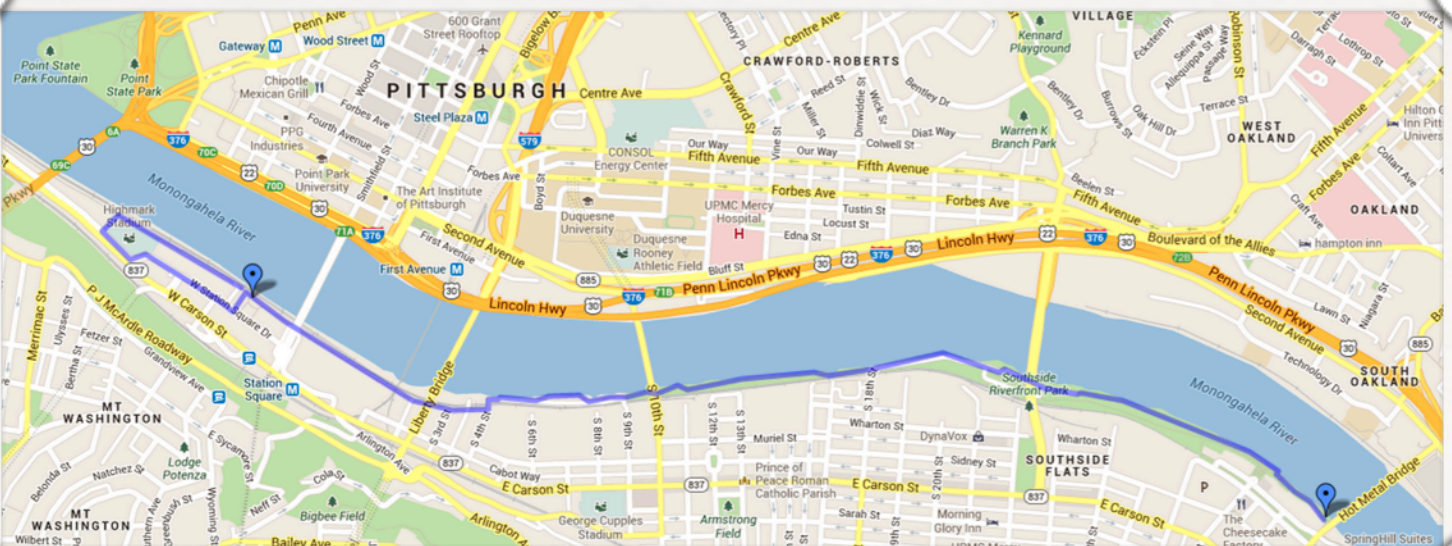
Please, check the conference website for updates: [www.sipweb.org](http://www.sipweb.org)

Be sure to sign up for the 5K run-walk for Tuesday evening. It is a lovely route on the Three Rivers Heritage Trail that follows along the Monongahela Riverfront and near the Sheraton Hotel (purple line on the map below). You can also check out the route by clicking this link:

<http://maps.google.com/maps/ms?vps=3&hl=en&ie=UTF8&oe=UTF8&msa=0&msid=207362373137685190193.0004d3093c87d8ee86b22>

The run-walk is a great opportunity to build new collaborations in an informal setting or beat the pants off a colleague that just scooped one of your ideas at an earlier scientific session!

It's also guaranteed to stoke an appetite for the barbecue later that evening. So pack your run-walk shoes and join in the fun!



## Remembrances

### IN MEMORIAM: FLÁVIO MOSCARDI (1949 – 2012)

Flávio Moscardi died in July 15 2012 at the age of 63 of natural causes in Londrina, Paraná, Brazil. Flávio was born in Osvaldo Cruz, São Paulo, Brazil. He was one of the principal scientists who established the biological control program against the soybean caterpillar using the baculovirus *Anticarsia gemmatalis* multiple nucleopolyhedrovirus (AgMNPV). This technology was widely implemented and used in Brazil and other South American and Latin American countries to control crop damage caused by the soybean caterpillar. AgMNPV was applied in Brazil to more than 2,000,000 ha each year. The successful implementation of this technology in Brazil prevented the use of 25 million liters of chemical pesticides, was one of the largest biological control programs worldwide at the time and may have been the most successful use of an entomopathogenic virus on vegetable crops.

Moscardi graduated with a bachelors degree in agronomic engineering from the Escola Superior de Agricultura Luiz de Queiroz (ESALQ-USP) where he was trained in the control of agriculture pests under the supervision of Dr. Octávio Nakano and Dr. Roger Williams (a visiting professor from the Ohio State University). Both professors greatly influenced his professional choice to seek a career in entomology and to obtain his MsC and PhD degrees at the University of Florida, United States.

He began his career in 1974 in the Instituto de Pesquisa e Experimentação Agropecuária do Centro-Oeste (IPEACO) in Campo Grande, which reorganized to form the Embrapa - Beef Cattle Research Center, where he worked on ant control and rearing insect parasitoids. After finishing his PhD conducting research on the ecology of the soybean caterpillar, Moscardi transferred to Embrapa - Soybean National Research Center in 1979. At the Embrapa National Center he made his most substantial and lasting impacts on insect pathology by developing integrated pest management tools, mainly by the use of biological pesticides.

Flávio Moscardi dedicated 35 years of research with microbial control with a focus on viruses the at the Embrapa - Soybean National Research Center. During his career, he authored more than 200 publications, including scientific articles published in Brazilian and international journals, book chapters, and technical notes. Moscardi was the principal adviser to 23 graduate students, many of whom still work on entomopathogens and microbial control.

As a Member of the Brazilian Academy of Sciences, he received several prestigious awards such as the “Commendation of the National Order of Scientific Merit” granted by the Brazilian President in August, 2002, “Agriculture by the Third World Academy of Sciences” in 1997, “Distinction by the International Society of Plant Protection in 1995” and the “Frederico de Menezes Veiga”, granted by Embrapa in 1991 and was



honored by the Founders' lecture of the SIP meeting in 2012, presented by Italo Delalibera. Moscardi was a regular attendee at SIP meetings and had many friends and collaborators at the Society.

Flávio was a member of the Advisory Board of Agriculture from CNPq, President of the Entomological Society of Brazil (SEB) from 1998 to 2002, and president of the X CBE (Brazilian Congress of Entomology, 1884), V Siconbiol (Biological Control Symposium - 1996), VII Colloquium of Invertebrate Pathology and Microbial Control (Foz do Iguaçu-PR, 2002) and President of the scientific committee of the XXI International Congress of Entomology, 2000.

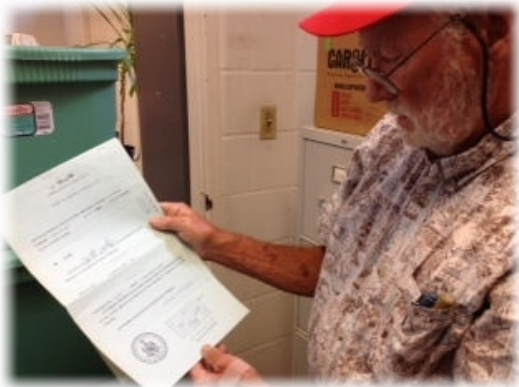


**Flávio Moscardi enjoying his catch of the day**

Besides being a great scientist, Moscardi's passion was fishing where he made many friends and organizing expeditions. We will miss him!!!

*Pedro Neves*

## **SIP History has been Archived!**



**Wayne Brooks archiving for SIP**

The history of SIP has been placed into a permanent archive for future generations. Wayne Brooks had collected many of our Newsletters and other materials over the years, but he wished to no longer have this responsibility. We realized that after almost 45 years, we needed a permanent place for these wonderful bits of history. We have donated four large boxes of records and publications including Newsletters, meeting programs, Directories for Invertebrate Pathology, and correspondence from our early founders, including Edward Steinhaus. The archives are being held at the University of Maryland, Baltimore County, Albin O. Kuhn Library and Gallery Special Collections, 1000 Hilltop Circle, Baltimore, MD 21250. Each year, a paper copy of the Newsletter and the Program and Abstracts will be sent to the Archives. Some of these materials will eventually be scanned and available, and anyone in need of information (such as for history chapters), can

access these materials. The Society also donated some funds to cover the expenses of the archiving. We thank Wayne Brooks for his dedicated collecting of materials over all these years.

*The SIP History Committee: James Harper, Don Roberts, Harry Kaya, Juerg Huber, Mark Goettel, Wayne Brooks, Fernando Vega, Betty Davidson- Chair*

## News from Our Members

### First Insect Pathology Course in Costa Rica

Last March, Patricia Stock (University of Arizona) taught the first Insect Pathology Course which took place in San Jose, Costa Rica. The course was sponsored by the Office of International Scholars of Universidad de Costa Rica and was hosted by MSc. Lorena Uribe and Dr. Lidieth Uribe. A total of 40 students (including undergraduate, graduate students and faculty members) attended a four-day intensive course that included lectures and one-day laboratory class. The course brought a lot of excitement and interest for research on native entomopathogens.



Lab demonstration

From left to right: Lidieth Uribe, Patricia Stock, Lorena Uribe



Attendees of the First Costa Rican Insect Pathology Course

### From Patricia Stock's lab (University of Arizona, USA)

The Stock Lab (Department of Entomology) welcomes Dr. Anaïs Castagnola, a former graduate student from the Juan L. Jurat-Fuentes Lab. Anaïs joined Patricia's laboratory last April as postdoctoral associate. She is funded by the PERT (Postdoctoral Expertise in Research and Teaching) Program at University of Arizona. She will conduct research on neurotoxic effects of entomopathogenic bacteria.

Ph.D. Candidate Rousel Orozco received an award from MGE@MSA (More Graduate Education at Mountain States Alliance) to travel to Frankfurt, Germany next June for a research internship in Dr. Helge Bode's Laboratory at University of Frankfurt. MS candidate John McMullen II also received a BRAVO fellowship from University of Arizona to do a summer internship in Dr. Sophie Gaudriault's laboratory at the Université Montpellier II, Montpellier, France.

Please send any news about your lab, research, outreach or educational activities to the newsletter editor so that it can be included in upcoming editions!

-Eric Haas-Stapleton, Editor (Eric.Haas-Stapleton@csulb.edu)

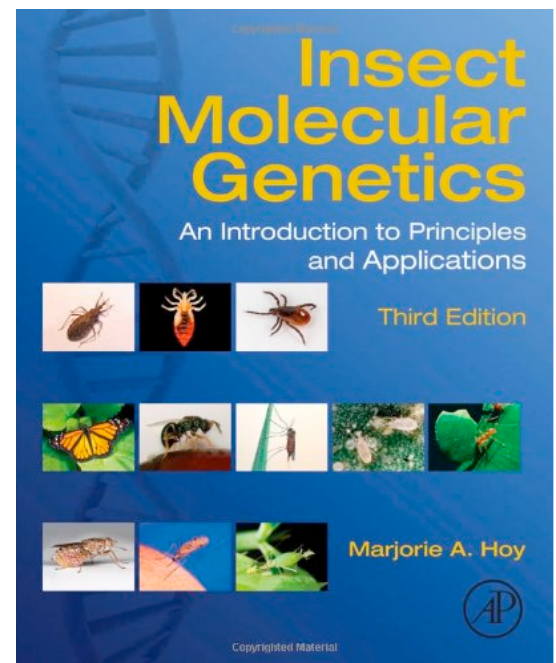
## New Books

### ***Insect Molecular Genetics, Third Edition: An Introduction to Principles and Applications***

**Author:** Marjorie A. Hoy  
**Publication date:** May 2013  
**Publisher:** Academic Press  
**ISBN-13:** 978-0124158740  
**Price:** US\$ 100  
**Pages:** 838

*Insect Molecular Genetics, Third Edition*, summarizes and synthesizes two rather disparate disciplines-entomology and molecular genetics. This volume provides an introduction to the techniques and literature of molecular genetics; defines terminology; and reviews concepts, principles, and applications of these powerful tools. The world of insect molecular genetics, once dominated by *Drosophila*, has become much more diverse, especially with the sequencing of multiple arthropod genomes (from spider mites to mosquitoes). This introduction includes discussion of honey bees, mosquitoes, flour beetles, silk moths, fruit flies, aphids, house flies, kissing bugs, cicadas, butterflies, tsetse flies and armyworms.

This book serves as both a foundational text and a review of a rapidly growing literature. With fully revised and updated chapters, the third edition will be a valuable addition to the personal libraries of entomologists, geneticists, and molecular biologists.



## Announcements

The Society is soliciting proposals for the 2016 meeting at a venue that is located in a region other than North America. Please contact the President of the Society, Jørgen Eilenberg <[jei@life.ku.dk](mailto:jei@life.ku.dk)> or the Chair of the Meetings Committee, Lerry Lacey <[lerry.lacey@ars.usda.gov](mailto:lerry.lacey@ars.usda.gov)> to discuss submitting a proposal.



A great webinar for learning how to peer-review a manuscript. It's likely to be very useful to those that are reviewing for the first time. More experienced reviewers may discover a few good tips to manage your review workflow. It is available at <http://www.entsoc.org/students/esa-webinar-series>.

### Free access to Science Direct for 6 months

Researchers without current access to Science Direct can get six months access at no cost. The offer is aimed to provide researchers with a PhD access to information in journals that will propel them on to their next career. Click on the following link for the offer: <http://www.elsevier.com/authors/an-opportunity-for-postdoctoral-scholars>

You might be interested in a recent video article published in the *Journal of Visualized Experiments*. The video describes how to inoculate beans with the fungal entomopathogen *Beauveria bassiana*. <http://www.jove.com/video/50360/establishing-fungal-entomopathogens-as-endophytes-towards-endophytic>

### SIP Meeting Photos Needed!

We are currently preparing to archive photos of SIP meetings and we need to find some good photos of meetings **1990 and earlier**. Photos of people are most important, and especially if you can identify the persons in the photos. Prints with the dates and names on the back will be most appreciated. Eventually these will be scanned and available through the UMBC archives. If you have some prints that you would like to have archived, please contact Betty Davidson, [e.davidson@asu.edu](mailto:e.davidson@asu.edu).

## Memories from SIP Meeting 2012 in Buenos Aires



Alicia Sciocco-Cap enjoying the final banquet night on the dance floor.



Patricia Stock is giddy with anticipation for the meating.



Thank you to everyone that made the 2012 one to remember!



Zihni Demirbag and Just Vlák will make that recorder work or turn bright red in the process!