

Jorge Bustamante, Jr

Department of Ecology and Evolutionary Biology
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EDUCATION

University of Washington

Ph.D. student in the Department of Biology

Expected graduation date: June 2020

Advisor: Dr. Thomas Daniel

Committee members: TBD

University of California, Irvine

M.S. candidate in the Department of Ecology and Evolutionary Biology

Expected graduation date: August 26, 2015

Advisor: Dr. Catherine Loudon

Committee members: Dr. Matthew McHenry, Dr. Timothy Bradley

University of California, Irvine

B.S. in Mechanical Engineering, June 2013

Advisor(s): Dr. Catherine Loudon, June 2010-present

Dr. Matthew D. Law, June-September 2009

PUBLICATIONS

Loudon, C., **Bustamante, J., Jr.** & Kellogg, D. W. Cricket antennae shorten when bending (*Acheta domesticus* L.). *Frontiers in Physiology* 5, doi:10.3389/fphys.2014.00242 (2014).

Liu, Y., Gibbs, M., Perkins, C. L., Tolentino, J., Zarghami, M. H., **Bustamante, J., Jr.** & Law, M. D. Robust, functional nanocrystal solids by infilling with atomic layer deposition. *Nano Letters* 11, 5349-5355, doi:dx.doi.org/10.1021/nl2028848 (2011).

RESEARCH EXPERIENCE

Thesis

September 2013-Present

Piercing mechanics of bed bug cuticle (*Cimex lectularius*), Advisor: Dr. Catherine Loudon.

Investigating the piercing mechanics of bed bug cuticle by plant trichomes in order to develop physical (non-chemical) pesticides. Nanoindentation was used to indent in specific locations of bed bug tarsi. All indents generated by nanoindentation were imaged in low vacuum scanning electron microscopy. The use of a nanomanipulator under low vacuum scanning electron microscopy provided key insight in order to visualize the events that occur during piercing.

Undergraduate researcher

June 2010-September 2013

Cricket antennae shorten when bending (*Acheta domesticus* L.), Advisor: Dr. Catherine

Loudon. Understanding the mechanical behavior of cricket antennae when bent. Took images of highly magnified cricket antennae with dissecting microscope, landscaped images

and converted into Cartesian coordinates with digitizing software (Didger 4) designed figures and images (i.e. charts, graphs, etc.) with graphic design software (Canvas 10-15) and maintained 40+ crickets.

Undergraduate researcher

June-September 2009

Atomic layer deposition of protective oxide shells on lead selenide solar cells, Advisor: Dr.

Matthew D. Law. Collaborative project investigating the effects of atomic layer deposition of various oxides on lead selenide solar cells to increase longevity of solar cells in normal atmospheric conditions. Findings in infrared spectroscopy helped define the overall project direction, experience in vacuum chamber: set up experiments, conducted experiments, maintained chamber hygiene, modified an existing LabView program to control pneumatic valve manifold and record pressure/temperature data.

TEACHING EXPERIENCE

Teaching assistant, *Physiology Laboratory*, UC Irvine.

Spring 2014, Fall 2014

Prepared, instructed, and supervised weekly physiology laboratory experiments and assignments. Graded lab reports and exams, assisted 24 undergraduate students (per course) outside of class with course material, assignments, and scientific writing.

Teaching assistant, *From Organisms to Ecosystems*, UC Irvine.

Summer Session I 2014, 2015

Online course, assist students outside of class with course material and involved in course administration.

GRANTS

National Science Foundation Graduate Research Fellowship Awardee

March 2015

CONFERENCE PRESENTATIONS

Jorge Bustamante, Jr., Jason F. Panzarino, Timothy J. Rupert, Catherine Loudon (November 2014). Characterization of mechanical properties of bed bug cuticle (*Cimex lectularius*). Oral presentation in *Entomological Society of America*, Portland, OR.

Jorge Bustamante, Jr., Catherine Loudon (September 2014). Characterization of mechanical properties of bed bug cuticle (*Cimex lectularius*). Oral presentation in *Southwest Regional Meeting of the Society for Integrative and Comparative Biology*, UC Irvine, Irvine, CA.

Jorge Bustamante, Jr., Catherine Loudon (October 2013). Cricket antennae shorten when bending (*Acheta domesticus* L.). Oral presentation in *Southwest Regional Meeting of the Society for Integrative and Comparative Biology*, UC Riverside, Riverside, CA.

Jorge Bustamante, Jr., Catherine Loudon (January 2013). Cricket antennae shorten when bending (*Acheta domesticus* L.). Poster presentation in *Society for Integrative and Comparative Biology Annual Meeting*, San Francisco, CA.

Jorge Bustamante, Jr., Catherine Loudon (September 2012). Bending of cricket antennae (*Acheta domesticus* L.). Poster presentation in *Ana G. Méndez University System Research Symposium*, San Juan, Puerto Rico.

Jorge Bustamante, Jr., Catherine Loudon (September 2012). Bending of cricket antennae (*Acheta domesticus* L.). Oral presentation in *California Alliance for Minority Participation Summer Scholars Symposium*, Irvine, CA.

Jorge Bustamante, Jr., Catherine Loudon (May 2011). Bending of cricket antennae (*Acheta domesticus* L.). Poster presentation in *Undergraduate Research Opportunities Program Symposium*, UC Irvine, Irvine, CA.

Jorge Bustamante, Jr., Catherine Loudon (February 2011). Bending of cricket antennae (*Acheta domesticus* L.). Poster presentation in *California Alliance for Minority Participation Statewide Research Symposium*, UC Irvine, Irvine, CA.

Jorge Bustamante, Jr., Catherine Loudon (October 2010). Bending of cricket antennae (*Acheta domesticus* L.). Poster presentation in *Society for the Advancement of Chicanos and Native Americans in Science National Conference*, Anaheim, CA.

Jorge Bustamante, Jr., Catherine Loudon (September 2010). Bending of cricket antennae (*Acheta domesticus* L.). Oral presentation in *California Alliance for Minority Participation Summer Scholars Symposium*, Irvine, CA.

Jorge Bustamante, Jr., Matthew D. Law (February 2010). Atomic layer deposition on PbSe solar cells. Poster presentation in *California Alliance for Minority Participation Statewide Research Symposium*, UC Irvine, Irvine, CA.

Jorge Bustamante, Jr., Matthew D. Law (February 2010). Atomic layer deposition on PbSe solar cells. Poster presentation in *American Association for the Advancement of Science*, San Diego, CA.

Jorge Bustamante, Jr., Matthew D. Law (September 2009). Atomic layer deposition on PbSe solar cells. Oral presentation in *California Alliance for Minority Participation Summer Scholars Symposium*, Irvine, CA.

Jorge Bustamante, Jr., Matthew D. Law (October 2009). Atomic layer deposition on PbSe solar cells. Poster presentation in *Society for the Advancement of Chicanos and Native Americans in Science National Conference*, Dallas, TX.

UNDERGRADUATE MENTORING

42 undergraduate students, UC Irvine, California Alliance for Minority Participation (CAMP),
Undergraduate Mentorship. June 2011

ORGANIZATIONAL INVOLVEMENT

Professional development advisor of MAES student chapter, UC Irvine. April 2014-2015
Provided the student chapter leadership with guidance on organizational structure, finances and day-to-day matters when solicited in order to foster progress in the students' professional careers.

AGS council member-Internal Committee, UC Irvine. May 2014-June 2015
Responsible for representing on-campus graduate student concerns (e.g. on-campus housing, parking, academic units, student life, healthcare and insurance).

External vice president of MAES student chapter, UC Irvine. April 2011-April 2012
Handled the student chapter external affairs. Met with representatives of industry in order to bring their companies to campus (e.g. Raytheon, Parker Aerospace, Boeing), maintained contact with UCI MAES alumni, helped write proposals sent out to engineering firms.

Internal vice president of MAES student chapter, UC Irvine. April 2010-April 2011
Handled the student chapter internal affairs. Planned board meetings and campus events, liaison to other organizations, acquired campus permits, met with other organizations (e.g. NSBE, SWE, etc.)

OUTREACH ACTIVITIES

MAES Science Extravaganza, UC Irvine. May 2012, 2013, 2014, 2015
Volunteered to lead an educational workshop (either egg drop or electromagnetism) to 150+ middle school students from low income areas in order to stimulate their interests in STEM fields.

CAMP Summer Science Academy Coordinator/Mentor, UC Irvine. Summer 2011, 2015
Managed five other mentors and 42 incoming freshman students during a three week intensive course, encouraged incoming freshman students through motivational speeches and involved in administration.

HONORS & AWARDS

Graduate student travel award, July 2014
An internal award by the UC Irvine Department of Ecology and Evolutionary Biology for travel to the annual Entomological Society of America meeting in Portland, OR.

CAMP undergraduate research symposium poster presentation award, UC Irvine. February 2011.

Dr. Francisco J. Lara endowed scholarship recipient, UC Irvine. Fall 2010
Funded by UC Irvine in the name of Vice Chancellor Emeritus Francisco Lara, to six undergraduate students who have participated in academic enrichment and/or academic outreach programs.

Pi Tau Sigma member, UC Irvine. Fall 2010
Granted membership of the honors mechanical engineering society on the basis of “sound engineering ability, scholarship (upper 35%), personality and probable future success in mechanical engineering.”

Dean’s Honor List of University of California, UC Irvine. Fall 2008-Spring 2009, Spring 2012
Receiving a GPA of 3.5 or higher during the respective quarter. Received in four undergraduate quarters.

PROFESSIONAL MEMBERSHIPS

Society for Integrative and Comparative Biology (SICB)
Entomological Society of America (ESA or EntSoc)
Latinos in Science and Engineering (MAES)
California Alliance for Minority Participation (CAMP)
Associated Graduate Students (AGS)

SKILLS

Spanish, native speaker—fluency in reading and conversational speaking.

Laboratory skills, basic to moderate insect husbandry, materials testing (INSTRON and nanoindentation), light and scanning electron microscopy.

Computer skills, MATLAB, LabView, Canvas 10-15, Didger 4, SolidWorks

REFERENCES

Dr. Catherine Loudon, University of California, Irvine
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(949) 824-0371

Dr. Arnold Guerra III, University of California, Irvine
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(949) 824-1802