

JORGE NICOLAS HERNANDEZ CHARPAK

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Education

University of Colorado at Boulder

Doctor of Philosophy in Physics,
Graduation expected in May 2017

Boulder, Colorado, USA

2011-present

Universidad de los Andes

Physics, Bachelor of Science
Best Thesis Presentation, Fall 2010

Bogotá, Colombia

September 2010

GPA **4.21/5.00**

Computing Engineering, Bachelor of Engineering

- Minor in Graphic Computing
- Minor in Chinese Language and Culture

September 2011

GPA **4.21/5.00**

Peking University

Visiting Student
Chinese Language and Culture Department
Physics School

Beijing, China

September 2007-June 2008

Research Experience

JILA/Physics, University of
Colorado at Boulder,
2012-present

Research Assistant

Using tabletop ultrafast coherent EUV and X-rays to study how heat flow and elastic properties of systems are affected by nanoscale dimension with Drs. Margaret Murnane and Henry Kapteyn.

Universidad de los Andes
Bogotá, Colombia
Sep 2010-Jun 2011

Computing Engineering, undergraduate senior thesis

Worked on Automated Detection of Coronal Mass Ejections (CMEs) using image processing of STEREO beacon images for the Space Weather Program (SWP) at NOAA with Drs. Marcela Hernandez-Hoyos (U. Andes) and Curt de Koning (SWP at NOAA in Boulder,CO).

Universidad de los Andes
Bogotá, Colombia
Jan-May 2010

Physics, undergraduate senior thesis

Worked on the application of the quantum time concept to proton decay through numerical calculations with Dr. Neelima Kelkar (U. Andes).

IFA, University of Hawai'i
Honolulu, HI
Summer 2009

Undergraduate Research Intern

Worked on developing and testing through simulation different geometrical models of Solar Coronal Mass Ejections propagation in the solar system with Dr. Noe Lugaz at the C2H2 (Center for computational Heliophysics in Hawai'i).

Teaching and outreach

University of Colorado at Boulder

Summer 2013

Mentor for REU student project

Spring 2012

Science Outreach Volunteer

Supporting the JILA/Physics outreach program as a teacher in science classes for primary school students.

Aug 2011- May 2012

Teaching Assistant

Teacher Assistant for calculus- and algebra-based introductory class.

Universidad de los Andes

Jan-May 2010

Teaching Assistant

Teacher Assistant of the calculus-based introductory physics class.

2005,2006,2007,2008

Undergraduate Teaching Assistant

Undergraduate Teaching Assistant for numerous sections of Chinese 1, Object Oriented Programming 1 and Object Oriented Programming 2.

Jan-May 2006

Administrative Assistant

Assistant of the project Pequeños Científicos (little scientists), for science education in primary schools.

Selected Publications

K.Hoogeboom-Pot, **J.N. Hernandez-Charpak**, and 8 others, *Coherent EUV-based acoustic nanometrology for the elastic characterization of ultrathin films*, in preparation.

K.Hoogeboom-Pot, **J.N. Hernandez-Charpak**, and 4 others, *How close-packing of nanoscale interfaces may overcome inefficiencies of ballistic heat transport*, In preparation.

Damiano Nardi, Kathleen M. Hoogeboom-Pot, **Jorge N. Hernandez-Charpak**, Marie Tripp, Sean W. King, Erik H. Anderson, Margaret M. Murnane, Henry C. Kapteyn, *Probing limits of acoustic nanometrology using coherent extreme ultraviolet light*, SPIE, Metrology, Inspection, and Process Control for Microlithography XXVII 8681, 86810N (2013).

J.N. Hernandez-Charpak, C. Perez-Romanello, M. Hernandez-Hoyos, *Fast Automated detection of CMEs fronts relevant for the Space Weather Program*, proceedings of the 6th CCC, IEEE, 978-1-4577-0288-0/11

Lugaz, N., **Hernandez-Charpak, J. N.**, Roussev, I. I., Davis, C. J., Vourlidas, A. & Davies, J. A., *Determining the Azimuthal Properties of Coronal Mass Ejections from Multi-Spacecraft Remote-Sensing Observations with STEREO SECCHI*, Astrophysical Journal, 2010, 715, 493-499.

Additional Work Experience

Fundación los Funámbulos,
Bogotá, Colombia
Sep 2009-Jan 2010

Project Leader

Web page, data base and Web portal design and construction of the educational NGO los Funámbulos.

Telme, Infotrans (Kodak), Haier
Bogotá, Colombia
Beijing, China
Jan 2007- Jul 2008

Translator

Translation of documents and oral intermittent translation in conferences. All translations were between English, French and Spanish.

Achievements and Awards

- May 2009 Grant awarded by the NSF (National Science Foundation) to participate as the only international REU member at the Institute for Astronomy at U. of Hawai'i.
- Dec 2009 Selected in an international competition to participate in the annual meeting of Confucian Institutes in Beijing.

Skills

Software and programming

- Java, C, C++, MATLAB, COMSOL, Labview, Assembler, HTTP, PHP.
- Good knowledge of image processing techniques and Finite Element Analysis.
- Familiar with Linux, Windows and MAC OS.

Techniques

- Metal machining, Optics, standard and ultra-fast laser systems, high-vacuum technology, pump-probe setup.
- Familiar with group work techniques: TSP and SCRUM.

Languages

- French (fluent)
- Spanish (fluent)
- English (fluent)
- Chinese (mandarin-Intermediate, HSK level 5)