

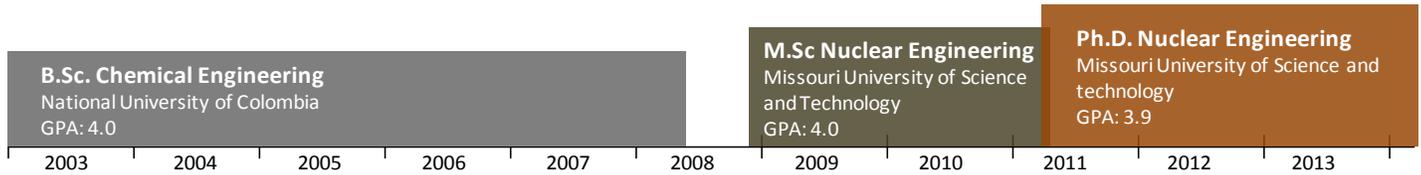
CHRISTIAN MAURICIO POSADA

Ph.D., M.Sc., Nuclear Engineering
B.Sc., Chemical Engineering

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EDUCATION



EXPERIENCE

Postdoctoral Fellow, Argonne National Laboratory. Chicago, IL

Jun '14 – Current

Microfabrication of arrays of TES sensors to be installed as Cosmic Microwave Background Detectors in the South Pole Telescope.

Transition Edge Sensors
Microfabrication
Superconducting films
Thin film deposition
Cosmic Microwave Background

RESEARCH ASSISTANT, Missouri University of Science and Technology,

Jan '09 – May '14

Simulation, fabrication and testing of a N-incorporated ultrananocrystalline diamond film (N-UNCD) based 3x3 field emitter array to be used as electron source in a transmission flat panel X-ray source.

High vacuum/High voltage systems
Field emission measurements
Particle-In-Cell (PIC) codes
Electron beam simulations
Electron optics
Electron sources

VISITING RESEARCHER, Argonne National Laboratory. Chicago, IL

Jul '11 – Sep '11 and Jul '13 – Oct '13

Fabrication of a modified single gate 3x3 N-UNCD-based field emitter array prototype, for a novel transmission flat pane X-ray source.

UV and laser photolithography
Microfabrication
Diamond films
CVD, PECVD
Dry and wet etching

GUEST RESEARCHER, Charged Particle Optics Group, TUDelft. The Netherlands

May '12 – Dec '12

Fabrication and testing of a Schottky emitter-based miniaturized scanning electron microscope (miniSEM).

Electron beam characterization
Charged particle optics
High voltage electronics
SEM
Electron sources
High vacuum systems

UNDERGRADUATE RESEARCH ASSISTANT, National University of Colombia.

Mar '07 – Mar '08

Determination of the optimal conditions for the enzymatic transesterification of Castor Oil to maximize the production of ethyl esters (Biodiesel).

Enzymatic synthesis
Statistical experimental design
ANOVA statistical analysis
Optimization
Alternative fuels

CO-OP Chemical Engineering. Grupo Bimbo Colombia

Sep '07 – May '08

Assistant of the quality control and continuous improvement division of the company. Grupo Bimbo is a food company with 150 plants in 19 countries, including 69 plants in the US.

Industrial scale manufacturing
Group management
Quality control
Statistical analysis

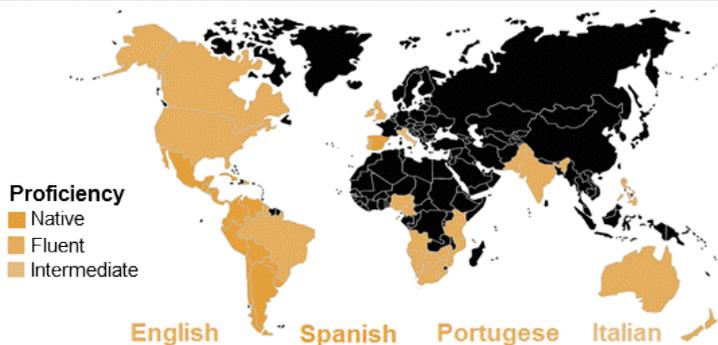
UNDERGRADUATE RESEARCH ASSISTANT, National University of Colombia.

Jan '06 – Mar '07

Study the effect oxidizing agents on natural extracts from medicinal plants found in the Colombian Amazon and the tropical Andes.

Liquid chromatography
Chemistry of Natural Products
Compounds purification
HPLC

LANGUAGES



AWARDS

STUDENT INVITED TALK. APS/CNM/EMC Users Meeting. 2014

Advanced Photon source/Center for Nanoscale Materials/ Electron Microscopy center. 2014 Users Meeting. Argonne National Laboratory, Argonne, IL

FULL DOCTORAL FELLOWSHIP (2011 – 2014)

Colombian Department of Science, Technology and Innovation – COLCIENCIAS.

GRADUATE RESEARCH ASSISTANSHIP (2009 – 2014)

Nuclear Engineering Department, Missouri University of Science and Technology,

2ND and 3RD PRIZE GRADUATE RESEARCH SHOWCASE (April - 2012),

Council of Graduate Students, Missouri University of Science and Technology,

PUBLICATIONS**JOURNAL PAPERS**

C. M. Posada, E. Grant, R. Divan, A. V. Sumant, D. Rosenmann, L. Stan, H. K. Lee, and C. H. Castano, "Nitrogen Incorporated Ultrananocrystalline Diamond (N-UNCD) Based Field Emitter Array for a Flat-Panel X-ray Source," J. of Appl. Physics. Accepted for publication, JR13-11973, (2014).

C. M. Posada, E. Grant, C. Castaño, H. Lee, "Simulation of the Electron Field Emission Characteristics of a Flat Panel X-Ray Source," J. of Vacuum Sci. and Tech. B 30 (2), pp 022201-022201-9, (2012).

E. Grant, **C. M. Posada**, C. Castaño, H. Lee, "Monte Carlo Simulations of a Distributed Flat-Panel Micro X-ray Source," Appl. Radiat. Isot. 70 (8), (2012).

C. M. Posada, E. J. Grant, H. K. Lee and C. H. Castaño, "Electron Field Emission PIC Coupled with MCNPX Simulation of a CNT-based Flat-Panel X-Ray Source," SPIE Proc. Vol. 7961, (2011).

E. J. Grant, **C. M. Posada**, A. Avachat, H. K. Lee, C. H. Castano, R. Divan, A. Summant, D. Lopez, "Construction of a Flat-Panel Cold Cathode X-ray Source" SPIE defense, security and sensing, 8709, (2013).

E. Álvarez, O. Jiménez, **C. M. Posada**, C. Rojano, J. Gil, C. García, D. Durango. "Antioxidant activity and phenolic content of extracts from berries of two species of vismia genus (guttiferae)" Revista De La Facultad De Química Farmacéutica, Universidad de Antioquia (Colombia), (2008).

CONFERENCES

C. M. Posada, et. al. "Fabrication and Testing of a Field Emitter Array based on Planar N-UNCD Films for a Flat-Panel Transmission X-ray Source," New Diamond and Nano carbons 2014. Oral Presentation. May 24th, Chicago, IL (2014).

2013 APS/CNM/EMC Users Meeting. Student Invited Talk "A Micro Patterned Field Emission Cathode Array Based on N-UNCDs for a Flat-Panel X-ray Emitter", Argonne National Laboratory, Argonne, IL, (2013).

C. M. Posada, E. J. Grant, H. K. Lee and C. H. Castaño, "Particle in Cell simulation of the Electron Source for a Distributed Flat-Panel X-Ray Source," Transactions of the American Nuclear Society, Vol. 105, pp. 15-17 (2011).

H. K. Lee, E. J. Grant, **C. M. Posada** and C. H. Castaño, "Monte Carlo Simulation Study of a Flat-Panel X-Ray Source," Transactions of the American Nuclear Society, Vol. 105, pp. 355 -356, (2011).

SPIE, Physics of Medical Imaging 2011:. Oral presentation: "Electron Field Emission Particle-In-Cell (PIC) coupled with MCNPX simulation of a CNT-based Flat-Panel X-ray Source," Orlando, FL, (2011).

Memphis Bioimaging Symposium. Oral presentation: "Electron Field Emission and X-Ray Generation Simulation Studies of a CNT-based Flat-Panel X-Ray Source," Memphis, TN, (2010)

C. M. Posada, J. Gil, C. García, D. Durango. "Effect of temperature, light & oxidizing agents in the color stability of Antranoids Prenylates Ferruginine A y γ -Hydroxiferruginine A" Congreso Colombiano de Fitoquímica (Proceedings of the Colombian Congress on Phytochemistry) (2007).

INTERESTS**Professional**

Filed emission. Electron sources. Field Emitter Arrays. Novel x-ray sources, Charged particle optics. Microfabrication. Transition Edge Sensors. High voltage/high vacuum systems. Vacuum techniques. Diamond films.

Personal

Road cycling. Swimming. Outdoors. Travelling. Photography. Languages . Sustainable development