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Current Affiliation **Universidad Iberoamericana**, Ciudad de México, MX **July 2010 - Today**

## Job Position

- Full Professor at *Departamento de Física y Matemáticas*, Universidad Iberoamericana, MX. **July 2010 - Today**
- P.I. at the Nanoscience and Nanotechnology Laboratory (Nanolbero), Universidad Iberoamericana, MX. **July 2010 - Today**
- Member of *National Research System (SNI)*. Level: I. CONACyT, MX. **January 2014 - Today**
- Coordinator of the Undergraduate Program of Engineering in Physics, Universidad Iberoamericana, MX. **August 2010 - October 2016**

Research Interests 2D materials, nanotubes, nanowires, graphene, nanoribbons, Density Functional Theory, Molecular Dynamics, electronic and spin properties, growth mechanisms, synthesis, experimental-modelling research, alternative energies: materials development

Education **University of Cambridge**, Cambridge, UK **October 2005 to 2009**

PhD, Engineering Department

- Thesis Topic: Computational Nanotechnology of Graphene, Nanotubes and Nanowires
- Research Group: Nanomaterials and Spectroscopy
- Supervisor: Dr Andrea C. Ferrari
- College: Pembroke College

**Duke University**, Durham, USA **September to December 2007**

Research stay at the Computational Materials Science and NanoScience Laboratory.

- Topic: Size induced enhanced diffusion in melting iron nanoparticle
- Supervisor: Prof Stefano Curtarolo

## Awards

**High Teaching Performance Award fall 2015- Spring 2016.** Sponsored by FICSAC, Universidad Iberoamericana, Mexico. November 2016.

**Recognition** for good practices during the coordination of the Physics Engineering Undergraduate Program, Universidad Iberoamericana, Mexico. Oct 2010.

**Research Productivity Award 2014.** Sponsored by the Research Direction and FICSAC, Universidad Iberoamericana, Mexico. June 2015.

**First place.** Jornadas Médicas XXXIV, Universidad La Salle, Mexico. June 2010.

**National Council of Science and Technology Mexico (CONACYT) PhD Scholarship** covering university fees and personal maintenance for a PhD in Engineering at the University of Cambridge, October 2005 to October 2008, and scholarship extension for finalizing PhD, October 2008 to October 2009.

**Inter-American Materials Collaboration sponsored** a two months visit to the Carbon Nanomaterials Research Group at the Rensselaer Polytechnic Institute (Troy NY, US). May and June 2004.

**Universidad Iberoamericana Scholarship** covering the complete cost of undergraduate studies, from August 2000 to January 2005.

## Publications

### International Journals

1. Garnica-Gutiérrez RL, Lara-Martínez LA, Palacios E, Rojas FM, Contreras A, Hernández-Gutiérrez S., **Cervantes-Sodi F.** Effect of Functionalized Carbon Nanotubes and their Citric Acid Polymerization on Mesenchymal Stem Cells in Vitro. *Journal of Nanomaterials*, *in press* (2018).
2. Luis A Lara-Martínez, Felipe Massó, Eduardo Palacios González, Isabel García-Peláez, Alejandra Contreras-Ramos, Mahara Valverde, Emilio Rojas, **Felipe Cervantes-Sodi**, Salomón Hernández-Gutiérrez. Evaluating the biological risk of functionalized multiwalled carbon nanotubes and functionalized oxygen-doped multiwalled carbon nanotubes as possible toxic, carcinogenic, and embryotoxic agents. *International Journal of Nanomedicine*. 12, **7695–7707** (2017).
3. Jiménez-Marín E., Villalpando I., Trejo-Valdez M., **Cervantes-Sodi F.**, Vargas-García J.R. and Torres-Torres C. Coexistence of positive and negative photoconductivity in nickel oxide decorated multiwall carbon nanotubes. *Materials Science and Engineering: B*. 22-29, **220** (2017).
4. Jiménez-Marín E., Torres-Torres C, Mercado-Zúniga C., Vargas-García J.R., Trejo-Valdez M. **Cervantes-Sodi F.**, Torres-Martínez R. Interferometrically controlled electrical currents in carbon nanotubes coated by platinum nanoparticles. *Optics and Laser Technology*. 85, **35** (2016).
5. Reyes-Retana A., **Cervantes-Sodi F.**, Spin-orbital effects in metal-dichalcogenide semiconducting monolayers. *Scientific Reports*. 6, **24093** (2016).
6. Juan Jose Vilatela, Maria E Rabanal, **Felipe Cervantes-Sodi**, Maximo Garcia-Ruiz, Jose A Jiménez, Mauricio Terrones, Gerd Reiband. Carbon nanotube growth on conventional engineering materials: steel, carbon fibre and ceramic brick. *J. of Nanosc. and Nanotech*. 15, **2858** (2015).
7. Selene Capula Colindres, Khalifa Aguir, **Felipe Cervantes Sodi**, J.A. Moncayo-Salazar, Luis Villa Vargas and Vicente Garibay Febles. Ozone sensing based on Palladium decorated Carbon Nanotubes. *Sensors*, **14**, 6806 (2014).

8. C. Mercado-Zúñiga, C. Torres-Torres, M. Trejo-Valdez, R. Torres-Martínez, **Felipe Cervantes Sodi**, J. R. Vargas-García. Influence of silver decoration on the nonlinear optical absorption exhibited by multiwall carbon nanotubes. *J. of Nanoparticle Research*, **6**, 2334 (2014).
9. C. Mercado-Zúñiga, J.R. Vargas-García, M.A. Hernandez-Perez, M.Z. Figueroa-Torres, **Felipe Cervantes Sodi** and L.M. Torres-Guerra. Synthesis of highly dispersed platinum particles on carbon nanotubes by an in-situ vapor-phase method. *Journal of Alloys and Compounds*. 615, **S538** (2014).
10. C. Mercado-Zúñiga, C. Torres-Torres, M. Trejo-Valdez, R. Torres-Martínez, S. Tarrago-Velez, **Felipe Cervantes Sodi**, J. R. Vargas-García. Mechano-optic regulation of photoconduction in functionalized carbon nanotubes decorated with platinum. *International Journal of Photoenergy*, 2014, ID 542658 (2014).
11. J. A. Reyes-Retana, G. G. Naumis, **Felipe Cervantes Sodi**. Centered honeycomb NiSe<sub>2</sub> nanoribbons, structure and electronic properties. *J of Chem. Phys. C*, **118**, 3295 (2014).
12. Mercado-Zúñiga, J. R. Vargas-García, **F. Cervantes-Sodi**, M. Trejo-Valdez, and C. Torres-Torres. Photoconductive logic gate based on platinum decorated carbon nanotubes. *Applied Optics*, **52**, 22 (2013).
13. **F. Cervantes-Sodi**, A. Íñiguez-Rábago, S. Rosas-Meléndez, M. Ballesteros-Villarreal, J. J. Vilatela, L. G. Reyes-Gutiérrez, E. Palacios, M. Terrones, J. A. Jiménez-Rodríguez. *Selective synthesis of double helices of carbon nanotube bundles grown on treated metallic substrates*. *Physica Status Solidi b*, **249** 2382 (2012).
14. E. Ramírez-Meneses, **F. Cervantes-Sodi**, Á. Hernández-Pérez, R.J.L. Vázquez-Olavarrieta, A. Aguilar-Morales, R. Martínez-Guerrero. *Low temperature one-step synthesis of molybdenum oxide films*. *ideas@CONCYTEG* **87**, 1083 (2012).
15. **F. Cervantes-Sodi**, J. J. Vilatela, L. G. Reyes-Gutiérrez, J. A. Jiménez-Rodríguez, S. Rosas-Meléndez, A. Íñiguez-Rábago, M. Ballesteros-Villarreal, E. Palacios, G. Reiband, M. Terrones. *Carbon nanotube bundles self-assembled in double helix microstructures*. *Carbon*, **50**, 3688 (2012).
16. **F. Cervantes-Sodi**, M. Moseler, G. Csányi, S. Hofmann and A. C. Ferrari. *Dynamic Catalyst Restructuring during Carbon Nanotube Growth*. *ACS Nano*, **4**, 7587 (2010).
17. **F. Cervantes-Sodi**, J. Liu and T. McNicholas and G. Csányi, A. C. Ferrari, S. Curtarolo. *Viscous State Effect on the Activity of Fe Nanocatalysts*. *ACS Nano*, **4**, 6950 (2010).
18. **F. Cervantes-Sodi**, G. Csányi, S. Piscanec, A. C. Ferrari. *Electronic properties of chemically modified graphene ribbons*. *Phys. Stat. Sol. b*, **245**, 2068 (2008).
19. **F. Cervantes-Sodi**, G. Csányi, S. Piscanec, A. C. Ferrari, *Edge-functionalized and substitutionally doped graphene nanoribbons: Electronic and spin properties*, *Phys. Rev. B*, **77**, 165427 (2008).
20. S. Hofmann, R. Sharma, C. T. Wirth, **F. Cervantes-Sodi**, C. Ducati, T. Kasama, R. E. Dunin-Borkowski, J. Drucker, P. Bennett, J. Robertson. *Ledge-flow-controlled catalyst interface dynamics during Si nanowire growth*. *Nature Materials* **7**, 372 (2008).
21. S. Hofmann, R. Sharma, C. Ducati, G. Du, C. Mattevi, C. Cepek, M. Cantoro, S. Pisana, A. Parvez, **F. Cervantes-Sodi**, A. C. Ferrari, R. Dunin-Borkowski, S. Lizzit, L. Petaccia, A. Goldoni, and J. Robertson. *In situ Observations*

*of Catalyst Dynamics during Surface-Bound Carbon Nanotube Nucleation*. Nano Lett. **7**, 602 (2007).

22. S. Pisana, A. Jungen, C. Zhang, A. M. Blackburn, R. Sharma, **F. Cervantes-Sodi**, C. Stampfer, C. Ducati, A. C. Ferrari, C. Hierold, J. Robertson, S. Hofmann; *Flying and Crawling Modes during Surface-Bound Single Wall Carbon Nanotube Growth*. J. Phys. Chem. C **111**, 17249 (2007).

### Conference Proceedings

1. Selene Capula Colindres, Khalifa Aguir, **F. Cervantes-Sodi**, Luis Villa Vargas, Vicente Garibay Febles. *Carbon nanotubes functionalized by nanoparticles of platinum*. Materials Science Forum, **793**, 45 (2014).

### Thesis Supervision

#### Masters

1. Camille Loison, "Synthesis and characterization of molybdenum diselenide". EMAC-Ecole des Mines Dálbi-Carmaux, Aug. 2016.
2. Rosa Luz Garnica Gutiérrez. "The effect of functionalized carbon nanotubes and their poly(citric acid) polymerization in contact with mesenchymal stem cells *In-vitro*". Master in Science and Engineering, Universidad Iberoamericana, Mexico City, 2016.
3. Aránzazu Carmona Orbezo. "Synthesis and characterization of molybdenum oxide electrochromic thin films by chemical vapor deposition". Master in Engineering and Chemical Sciences. Universidad Iberoamericana, Mexico City, 2015.

#### Undergraduate

1. Hugo Solera Licona, "Crecimiento de nanotubos catalizados por nanopartículas depositadas mediante pulverización catódica". Physical Engineering Undergraduate Degree. Universidad Iberoamericana, Mexico City, May 2017.
2. José Armando Moncayo, "Crecimiento directo de nanoalambres de MgO y ZnO a partir de aleaciones". Physical Engineering Undergraduate Degree. Universidad Iberoamericana, Mexico City, May 2016.
3. Uriel Alerhand Sissa, "Síntesis, control de crecimiento, transferencia y caracterización de hojuelas de MoS<sub>2</sub>". Physical Engineering Undergraduate Degree. Universidad Iberoamericana, Mexico City, Nov. 2015.
4. Yair Levin Konigsberg, "Síntesis, control de crecimiento, transferencia y caracterización de hojuelas de MoS<sub>2</sub>". Physical Engineering Undergraduate Degree. Universidad Iberoamericana, Mexico City, Nov. 2015.
5. María Mónica Ballesteros, "Síntesis y transferencia de grafeno a obleas de SiO<sub>2</sub>". Physical Engineering Undergraduate Degree. Universidad Iberoamericana, Mexico City, May 2015.
6. Santiago Tarragó Vélez, "Crecimiento y caracterización de monocapas de MoS<sub>2</sub>". Physical Engineering Undergraduate Degree. Universidad Iberoamericana, Mexico City, Nov. 2014.
7. Fernando Agustín Iñiguez, "Crecimiento de MoS<sub>2</sub> por CVD". Physical Engineering Undergraduate Degree. Universidad Iberoamericana, Mexico City, May 2014.

8. Lourdes Cabrero Vilatela, "Síntesis de grafeno". Physical Engineering Undergraduate Degree. Universidad Iberoamericana, Mexico City, Dec. 2013.
9. Diego Balam Carrasco, "Modelado de la adsorción de Flúor en Grafeno". Physical Engineering Undergraduate Degree. Mexico City, May 2013.
10. Andrea Cabrero Vilatel. "Biocompatibilidad y Regeneracion de Celulas Cardiacas utilizando Películas de Nanotubos". Physical Engineering Undergraduate Degree. Universidad Iberoamericana, Mexico City, May 2010.

## Technical Skills

**Matlab & Mathematica** experience: Data analysis, plotting, programming.

Programming: C++, Fortran

Applications: T<sub>E</sub>X, L<sup>A</sup>T<sub>E</sub>X, BibT<sub>E</sub>X, Microsoft Office, Corel Draw, Origin, and other common productivity packages for Windows, and Linux platforms, as well as visualizing programs as Atomeye, **Materials Studio**, Atomeye, vmd, etc.

Operating Systems: Microsoft Windows XP/2000 & Linux.

Codes: castep, **Quantum Espresso**, and Molecular Dynamics codes.

Experimental Setups: CVD, Sputtering, Thermal Evaporation, Electrospinning, Thin Film Techniques, Scanning Electron Microscopy.