

Curriculum Vitae

Dr.rer.nat. Julio C. Chacón-Torres (PhD.)



Date of birth: 15.10.1983

Nationality: Mexican

E-mail: julio.chacon@gmail.com

Phone number: (+593) 983543041

Website: <https://www.yachaytech.edu.ec/en/perfil/julio-c-chacon-torres-ph-d/>

ORCID ID: orcid.org/0000-0002-1833-504X

EDUCATION

DOCTORATE – PhD. (Dr. rer. nat.)

09.2010 - 11.2013

Universität Wien, Austria

Specialization: Experimental physics and Material sciences

Thesis title: "Theory and Spectroscopy on functionalized graphene and GICs"

PhD. Nanoscience and Nanotechnology

08.2008 - 08.2010

Institute for Scientific and Technological Research of San Luis Potosí (IPICyT), Mexico

Specialization: Material Sciences and Nanotechnology

Thesis title: "Integration of nanocarbon structures and nanotubes into micro-fabricated magnetic devices"

B.Sc. Mechatronics Engineering (IMT)

05.2001 – 06.2008

Tecnológico de Monterrey, Mexico

Specialization: Mechatronics

WORK EXPERIENCE

Yachay Tech University, Ecuador

09.2016 - current

School of physical sciences and nanotechnology, Prof. Dr. Gema González (Dean)

Position: **Assistant Professor - Head of Nanotechnology**

Projects and activities:

- Functionalized nanostructured materials for potential electronic, and optoelectronic applications.
- Investigation of nanostructured clay as a potential housing material.
- Supervisor of Bachelor, and PhD students.
- Lecturer in the bachelor's nanotechnology specialization.
- Tenure track committee council representative.
- Head of the Nanotechnology department.
- Coordination of cooperative research within Germany, Austria, Hungary, Brazil, Ecuador and Mexico.
- Hiring and administration of teaching loads and lecturing within the Nanotechnology Engineering.
- Purchasing and design of laboratory equipment for specialized courses in Nanotechnology.
- Characterization and lab purchasing advisor.
- Peer-review journal referee.
- Participation in international conferences, workshops and seminars.

Tec de Monterrey, México

02.2022 – 06.2022

Faculty of Sciences, Engineering and Construction, PhD. Carlos Ávila (Dean)

Position: **Invited International Professor**

Projects and activities: Lecturer of Nanotechnology Modular Section.

Universidad UTE, Ecuador

02.2019 – 04.2020

Faculty of Sciences, Engineering and Construction, PhD. Carlos Ávila (Dean)

Position: **Visiting Professor and Research representative**

Projects and activities: Nanostructured materials for construction.
Nanostructured clay research for construction.
Teaching courses within Civil Engineering.
Collaborator in the development of the Advanced Materials Center - UTE.
Developer of the lines, groups and research projects within the Faculty.
Member of the UTE editorial committee.

Freie Universität Berlin, Germany

04.2014 – 06.2016

Experimental Physics institute, Prof. Dr. Stephanie Reich (Head)

Position: **Postdoctoral Researcher, INTERNATIONAL SELECTION PROCESS BY MERITS – Working contract position**

Projects and activities: *In-situ* graphene and carbon nanotubes spectroscopy under inert and high-vacuum conditions.
Setting up and optimization of cryogenic systems for temperature dependent *in-situ* Raman analyses.
Development of a multipurpose high-vacuum set-up for *in-situ* chemical reactions and Raman spectroscopy.
Investigation of supramolecular interactions nanostructured multilayered materials.
Coordination of research projects within Germany, Austria, and Brazil.
Supervision of Bachelor, Master and PhD students.
Participation in international conferences, workshops and seminars.

Universität Wien, Austria

09.2010 - 11.2013

Electronic Properties of Materials, Prof. T. Pichler (Head)

Position: **Researcher, INTERNATIONAL SELECTION PROCESS BY MERITS – Working contract position**

Projects and activities: Synthesis and Characterization of Graphene, "Graphite Intercalation Compounds", and Carbon Nanotubes.
Multifrequency Raman spectroscopy, photoelectron emission spectroscopy (XPS, ARPES, UPS).
Synchrotron radiation experience at BESSY II - Berlin, Germany.
Basic ab-initio calculations by using ABINIT software.
Guidance of bachelor and master students.
Participation in international conferences, workshops and seminars.

Institute for Scientific and Technological Research of San Luis Potosi, IPICYT, Mexico

08.2008 - 08.2010

Advanced Materials, Prof. M. Terrones (Head)

Position: **Researcher, Doctoral Candidate, Focus Area Nanoscience and Nanotechnology**

Projects and activities: Synthesis and characterization of multi-walled carbon nanotubes and intercalation compounds.
Electron microscopy (HRTEM, JEOL and UHR-SEM).
Dual Beam FIB FEI-HELIOS 600 NanoLab and Micro-Raman RENISHAW.

SUMMARY OF SCIENTIFIC CONTRIBUTIONS

- **(19)** Peer review publications: (1) Nature Comm. (1) Appl. Phys. Lett. (2) ACS Nano (1) Carbon (1) Angew. Chem. (1) Phys. Rev. B (7) Phys. Status Solidi B. (2) JACS (2) Scientific reports (1) Materials
- Mean journal impact factor: **8.94**
- **(1)** Additional publications: (1) VI encuentro Participación de la Mujer en la Ciencia
- Citations **603**; h-index: **12** (Google scholar)
- Journal referee: Nature Comm., Sci. Rep., Carbon, Phys. Rev. B, Materials Express and Phys. Status Solidi B
- Funding accepted ~100,000 USD Internal Grants, National Polytechnic School (EPN) Ecuador 2018
- Funding received ~25,000 Euro DRS Fellowship at NanoScale, Free University Berlin 2014, Free University Berlin 2020

AWARDS, FELLOWSHIPS, SCHOLARSHIPS & HONORS

“Participation Fellowship”, IWEPM 2019 winter school (Austria)	2019
Outstanding Contribution in Reviewing award 2017 (Carbon Journal-Elsevier).....	2017
“Millie Dresselhaus Poster Award”, NT17 Conference (Brazil)	2017
POINT Marie Curie Fellowship Award 2014 (Germany)	2014-2016
Best Poster Award IWEPM 2013 (Austria)	2013
“Insignia Bicentenario 2012” International Award (Mexico)	2013
Poster Award - Scientific merit and visual appeal (Hungary)	2012
Doctoral Fellowship FWF-I377-N16 and OEAD Amadeus Program (Austria)	2010-2013
Doctoral Scholarship CONACyT (Mexico)	2008-2010
Bachelor Scholarship (45 %) Tecnológico de Monterrey (Mexico)	2001-2008
Bachelor Scholarship EDUCAFIN (Mexico)	2001-2008
First Place “Ingeniería Expone” Advanced prototype	2007
Third Place “Ingeniería Expone” Advanced prototype	2007
Undergraduate Scholarship (90 %) Tecnológico de Monterrey (Mexico).....	1998-2001

RESEARCH STAYS

1. **Croatia (2022), Zagreb University | Prof. Vito Despoja**
2. **Germany (2021), Freie Universität Berlin (FU-Berlin) | Prof. Stephanie Reich**
3. **Mexico (2019), Universidad de La Salle Bajío | Prof. Juan José Becerril De Anda**
4. **Germany (2019), Freie Universität Berlin (FU-Berlin) | Prof. Dr. Stephanie Reich**
5. **Germany (2018), Zentralinstitut für Neue Materialien und Prozesstechnik (ZMP Univ. Erlangen) | Prof. Dr. Andreas Hirsh, and Dr. Frank Hauke**
6. **Germany (2017), Zentralinstitut für Neue Materialien und Prozesstechnik (ZMP Univ. Erlangen) | Prof. Dr. Andreas Hirsh, and Dr. Frank Hauke**
7. **Hungary (2014), Budapest University of Technology and Economics | Prof. Dr. Ferenc Simon**
8. **France (2010), Lille Catholic University | Prof. Dr. Ludger Wirtz**

TOP PUBLICATIONS

1. **Optimized and scalable synthesis of magnetic nanoparticles for RNA extraction in response to developing countries' needs in the detection and control of SARS-CoV-2**
By: Julio C. Chacón-Torres, C. Reinoso, Daniela G. Navas-León, Sarah Briceño & Gema González
SCIENTIFIC REPORTS Volume: 10 Article Number: 19004 Published: NOV 4 2020
2. **Precise determination of graphene functionalization by in situ Raman spectroscopy**
By: Vecera, Philipp; Chacon-Torres, Julio C.; Pichler, Thomas; et al.
NATURE COMMUNICATIONS Volume: 8 Article Number: 15192 Published: MAY 8 2017
3. **Exploring the Formation of Black Phosphorus Intercalation Compounds with Alkali Metals**
By: G Abellán, C Neiss, V Lloret, S Wild, JC Chacón-Torres, K Werbach; et al.
ANGEWANDTE CHEMIE INTERNATIONAL EDITION, Volume: 56(48) Pages: 15267-15273 Published: OCT 2017
4. **Potassium intercalated multiwalled carbon nanotubes**
By: Chacon-Torres, J. C.; Dzsaber, S.; Vega-Diaz, S. M.; et al.
CARBON Volume: 105 Pages: 90-95 Published: AUG 2016
5. **Understanding the Electron-Doping Mechanism in Potassium-Intercalated Single-Walled Carbon Nanotubes**
By: Claudia Kröckel, María Rosa Preciado-Rivas, Victor Alexander Torres-Sánchez, Duncan John Mowbray, Stephanie Reich, Frank Hauke, Julio C Chacón-Torres (corresponding author), Andreas Hirsch.
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY Volume: 142(5) Pages: 2327-2337 Published: JAN 2020

6. Manifestation of Charged and Strained Graphene Layers in the Raman Response of Graphite Intercalation Compounds

By: [Chacon-Torres, Julio C.](#); Wirtz, Ludger; Pichler, Thomas

ACS NANO Volume: 7 Issue: 10 Pages: 9249-9259 Published: OCT 2013

TEACHING EXPERIENCE

Biomaterials

LEC 3 h/wk, Lab 3 h/wk, 5 credits
Yachay Tech University (Ecuador)

(2021 2nd Term)

(2021 1st Term)

Spectroscopy II NA-85

LEC 3 h/wk, Lab 3 h/wk, 5 credits
Yachay Tech University (Ecuador)

(2021 2nd Term)

(2020 1st Term)

(2019 1st, 2nd Term)

(2018 1st Term)

Spectroscopy I NAN-702

LEC 3 h/wk, Lab 3 h/wk, 5 credits
LEC 12 h/wk, Lab 6 h/wk, 5 credits (Modular course)
Yachay Tech University (Ecuador)

(2021 1st Term)

(2020 2nd Term)

(2018 2nd Term)

(2017 2nd Term)

Análisis Formal

LEC 5 h/wk, Tutorship 1 h/wk,
Universidad UTE (Ecuador)

(2019 2nd Term)

Oscillations, Electricity & Magnetism NAN-501

LEC 4 h/wk, LAB 2 h/wk, 5 credits
Yachay Tech University (Ecuador)

(2016 2nd Term / 2017 1st Term)

Solid States Physics ENG 260111-1

Universität Wien (Austria)
Exercises and course materials

(2011)

THESIS SUPERVISED

(1) Ph.D. Thesis: (1) Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany (Co-supervisor 2018 - 2020).

(2) M.Sc. Thesis: (1) Universidad San Gregorio de Portoviejo, Ecuador (Supervisor 2019); (1) Freie Universität Berlin, Germany (Co-supervisor 2015).

(30) B.Sc. Thesis: (21) Yachay Tech University, Ecuador (Supervisor & co-supervisor 2019 – 2020); (1) Freie Universität Berlin, Germany (Co-supervisor 2016).

GRANTS AND PROJECTS

Alumni Program Freie Universität Berlin “Surface-enhanced Raman scattering induced by triangular silver nanostructures.”

Experimental Physik, Freie Universität Berlin, Germany

2021 (4 weeks)

INTERNATIONAL COLLABORATION PROJECT via SFB 953 „Synthetic Carbon Allotropes“

Friedrich-Alexander-Universität, Nuremberg-Erlangen, Germany

2014- up today (4 YEARS ongoing)

DRS POSTDOC FELLOWSHIP PROJECT In-situ graphene and carbon nanotubes spectroscopy

Experimental Physik, Freie Universität Berlin, Germany

2014-2016 (2 YEARS and 2 MONTHS)

MARIE CURIE – FWF PROJECT „Theory and Spectroscopy on functionalized graphene“

Institut Elektronische Materialwissenschaften der Fakultät für Physik, Universität Wien, Austria

2010-2013 (3 YEARS)

JUNIOR PROJECT GRANTED (US\$80,000) „Materiales nanoestructurados: Una aplicación en el reforzamiento de materiales de construcción vernáculos del Ecuador“ – „Nanostructured materials: an application to reinforce vernacular construction materials in Ecuador“

National Polytechnic School (Spanish: Escuela Politecnica Nacional - EPN) Quito, Ecuador

2018-2020 (2 YEARS)

SEED PROJECT GRANTED (US\$15,000) „Estudio numérico computacional de la meso-escala del hormigón; desarrollo de tecnología discreta para la caracterización mecánica de materiales compuestos“ – „Computational numerical study of the meso-scale of concrete; development of a discrete technology for the mechanical characterization of composite materials“

National Polytechnic School (Spanish: Escuela Politecnica Nacional - EPN) Quito, Ecuador

2018-2019 (1.5 YEARS)

INTERNAL PROJECT GRANTED (US\$5,000) „Optimización del proceso de síntesis de óxido de nitruro de boro y carbono (BCNO) a partir de urea y ácido bórico“ – „Optimization of the synthesis process of boron carbon oxynitride (BCNO) from urea and boric acid“

National Polytechnic School (Spanish: Escuela Politecnica Nacional - EPN) Quito, Ecuador

2018-2018 (1 YEAR)

Undergraduate Projects:

1. Design and manufacture a four degrees of freedom robotic arm intended for the relocation of light weighted elements with a maximum of 500 gr.
First Place Award for “Advanced Engineering Prototype” at “Ingeniería Expone 2007” (ITESM, Leon, Mex. 2007)
2. Design and manufacture of and intelligent parking lot using proximity sensors and PLC technology.
Second Place Award for “Engineering Prototype” at “Ingeniería Expone 2006” (ITESM, Leon, Mex. 2006)

PARTICIPATION IN WORKSHOPS AND CONFERENCES

**** *Invited talk*

*** *Poster and Contributed talk*

***Contributed talk*

**Poster*

* 22th Int. Conference on the Science and Application of Nanotubes (NT22) KOR	Jun 19 – Jun 24, 2022
**** Maestría de Materiales con Trayectoria de Investigación de la Facultad de Ingeniería Mecánica de la Escuela Politécnica Nacional (Ecuador)	22 Julio 2021
**** Biomedical Engineering Week	03 Julio 2021
**** II SEMINARIO INTERNACIONAL DE BIONANOTECNOLOGÍA, INNOVACIÓN, INVESTIGACIÓN Y DESARROLLO EN AMÉRICA LATINA	29 Junio 2021
**** Club de Biomateriales Webinars	18 Mayo 2021
**** MINDTALKS PANDEMIC EDITION	30 Marzo 2021
**** Cooperación académica internacional y la práctica del idioma inglés (Ibero León)	22 Abril 2021
**** Month of Optics	17 Abril 2021

***GRAPHENE AND 2D MATERIALS INDUSTRIAL FORUM (GIF2020)	May 2020
**** WEBINAR: "UNDERSTANDING THE ELECTRON-DOPING MECHANISM IN POTASSIUM-INTERCALATED SINGLE-WALLED CARBON NANOTUBES"	March 2020
Equipment operation and management course XPS Physical Electronics (40h)	Sep. 2019
**** "DISERTACIONES HACIA UNA CIUDAD COMPARTIDA Y SOSTENIBLE... GUAYAQUIL HACIA EL BICENTENARIO"	Dic 02 - Dic 03, 2019
(Organizer) Nanoscience Summer School @ Yachay 2019 (NSSY 2019) ECU	May 26 - Jun 01, 2019
**** TERCERA JORNADA POR EL DÍA MUNDIAL DE LA SEGURIDAD Y SALUD EN EL TRABAJO: FORO SOBRE LOS PROBLEMAS DE LA PREVENCIÓN DE LOS RIESGOS LABORALES EN EL ECUADOR	April 2019
*Int. Winterschool on Electronic Properties of Novel Materials (IWEPNM 2019) AUT	Mar 09 - Mar 16, 2019
**** Simposio de Recuperación Mejorada de Petroleo	Nov 19 – Nov 20, 2018
**** Instituto Tecnológico EURODISEÑO	Nov 29, 2018
**** V Congreso Latinoamericano de Estudiantes de Química	Nov 21 – Nov 23, 2018
** Nanoscience Summer School @ Yachay 2018 (NSSY2018) ECU	Jul 30 – Aug 03, 2018
*Graphene 2018, Dresden GER	Jun 26 – Jun 29, 2018
**** Primer ciclo de conferencias IEEE-ESPE de Robótica y Biomecánica	Feb 08, 2018
**The Nanoscience Summer School @ Yachay 2017 (NSSY2017) ECU	Agu 31 – Sep01, 2017
***18th Int. Conference on the Science and Application of Nanotubes (NT17) BRZ	Jun 25 – Jun 30, 2017
*Int. Winterschool on Electronic Properties of Novel Materials (IWEPNM 2017) AUT	Mar 04 - Mar 11, 2017
*Int. Winterschool on Electronic Properties of Novel Materials (IWEPNM 2016) AUT	Feb 13 - Feb 20, 2016
**XIV Brazilian MRS meeting – BRZ	Sep 27 – Oct 01, 2015
*Graphene Week 2015 (Graphene Flagship) UK	Jun 22 – Jun 26, 2015
*Int. Winterschool on Electronic Properties of Novel Materials (IWEPNM 2015) AUT	Mar 07 - Mar 14, 2015
*XIII Brazilian MRS meeting – BRZ	Sep 28 – Oct 02, 2014
*14th Int. Conference on the Science and Application of Nanotubes (NT13) FIN	Jun 24 – Jun 28, 2013
*Int. Winterschool on Electronic Properties of Novel Materials (IWEPNM 2013) AUT	Mar 02 - Mar 09, 2013
*5th Szeged International Workshop on Advances in Nanoscience (SIWAN 2012) HUN	Oct 24 - Oct 27, 2012
*Int. Winterschool on Electronic Properties of Novel Materials (IWEPNM 2012) AUT	Mar 03 - Mar 10, 2012
*Int. Winterschool on Electronic Properties of Novel Materials (IWEPNM 2011) AUT	Feb 26 - Mar 05, 2011
*11th Int. Conference on the Science and Application of Nanotubes (NT10) CAN	Jun 27 - Jul 02, 2010
*First National Workshop of users LINAN – MEX	Sep, 2009
*6th Meeting - Participation of women in science – MEX	May 13 – May 15,2009
Seguridad en Acoples y Mangueras I y II (DIXON) – MEX	May 15,2008
Impulso XV (Tec de Monterrey) – MEX	26 Oct, 2002
Taller de Máquinas Eléctricas (Tec de Monterrey) – MEX	Ago, 2001
Pleaneación, Estrategia de Mercadotecnia y Lanzamiento a Medios de un Producto Nuevo	Mar, 2001
Curso Lógica Computacional	Jan 12 – Jan 13, 2006
Programación de Juegos tipo Arcade	Apr 07 – Apr 08, 2005
Visual Basic Developer.NET	Mar 03 – Mar 04, 2005

SKILLS

LANGUAGES

Spanish |Mother tongue|, English |Advanced|, German |Intermediate B2|

ACADEMIC ACTIVITIES AND COMMISSIONS OF TRUST

Director of the Nanotechnology Department

School of physical sciences and nanotechnology

Yachay Tech University, EC.

March 2021 - current

Jan 2018 – Jul 2019

Master Program Coordinator (School of Physical Sciences and Nanotechnology)

School of physical sciences and nanotechnology

Yachay Tech University, EC.

June 2021 – current

Council representative (School of Physical Sciences and Nanotechnology) School of physical sciences and nanotechnology Yachay Tech University, EC.	June 2021 – current
Purchasing Coordinator Purchasing of teaching equipment for the School of physical sciences and nanotechnology Yachay Tech University, EC.	March 2021 - current Sep 2016 – Jul 2019
Research representative Faculty of Sciences, Engineering and Construction UTE University, EC.	Feb 2020 – Apr 2020
Editorial Council Member Faculty of Sciences, Engineering and Construction UTE University, EC.	Feb 2020 – Apr 2020
Tenure Track Representative School Council School of physical sciences and nanotechnology Yachay Tech University, EC.	Sep 2016 – Sep 2017

* „Presentación de Proyectos, Oscilaciones Electricidad y Magnetismo“ – „Undergraduate scientific project fair in Oscillations, Electricity and Magnetism“ (2nd Edition) Public presentation Yachay Tech University, ECU December 2017

* „Presentación de Proyectos, Oscilaciones Electricidad y Magnetismo“ – „Undergraduate scientific project fair in Oscillations, Electricity and Magnetism“ (1st Edition) Public presentation Yachay Tech University, ECU December 2016

Activities coordinator of the AMM (Mexican Association of Mechatronics) MEX	2006 – 2007
Coordinator on “Impulso 16” International Congress in Mechanics, Monterrey, NL. MEX	2005
General Logistic Coordinator on “Génesis Global” National Congress León, GTO. MEX	18, 19 y 20 Sep. 2003
Public Relations Administrator (Mechatronics Engineering Students Society) MEX	2002 – 2003
Public Relations Administrator (Tec de Monterrey student federation – FEITESM) MEX	2003 – 2004

* In these activities I was the main organizer and developer of a scientific fair organized with zero budget. My students from NAN-501 had to show a working prototype with social applicability that involves the physical concepts learned during the course of Oscillations, Electricity and Magnetism.