



Yachay Tech University, School of Physical Sciences and
Nanotechnology, 100119-Urcuquí, Ecuador

School of Physical Sciences
and Nanotechnology
Dr. Julio C. Chacón Torres
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**Experimental/Theoretical
Quantum Physicist (Lecturer)**

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**A ONE YEAR LECTURER POSITION IN QUANTUM OPTICS AND QUANTUM
INFORMATION IN ENGLISH.**

Position Type: Academic
Department: School of Physical Sciences and Nanotechnology
Work Location: Yachay Tech University – San Miguel de Urcuquí, Imbabura, Ecuador
Pay Grade: 7 (Gross salary \$4,424 usd)
Period: One year starting the 1st of October, with possibilities of renewal.

We are seeking applicants for a lecturing position in the area of experimental and/or theoretical quantum optics and quantum information as special lectures in Physics. The candidate will Lecture on “*Quantum Optics & Quantum Information*” as a part of the Specialization II: in Quantum & Particle Physics in the curricular mesh of Physics at the School of Physical Sciences and Nanotechnology.

Responsibilities: Developing the Syllabus for the “*Quantum Optics & Quantum Information*” Lecture for the IX-Semester students in Physics. Establish the required knowledge and understanding necessary to determine and apply quantum optics and information in current research in Physics and Nanotechnology. Introduction to Lasers: semi-classical interactions, properties, cavities, and Gauss beams. Radiation and detectors. Introduction to nonlinear optics. Emission and absorption of radiation (applications). Second quantification of the electromagnetic field in free space; photons. Spontaneous emission and natural life time; Lamb shift. Elements of dispersion theory. Photonic quantum computation.

As part of the Quantum Information the fundamentals of computational complexity of quantum information; quantum phenomena; circuits and quantum universality; relationship between quantum and classical complexity classes; simple quantum algorithms; and the quantum Fourier transform should be introduced.

Finally, the course should address the Shor factorization algorithm; Grover search algorithm; physical realization of quantum computation; error correction and fault tolerance; and the distribution of quantum keys.

Minimum qualifications: PhD in physics or related field

Preferred qualifications: PhD in quantum optics with a strong background in both theoretical and experimental quantum optics and current active scientist with publications in the field.

Special Instructions:

Please send an email to emedina@yachaytech.edu.ec and ecifuentes@yachaytech.edu.ec attaching your Resume/CV and a tentative Syllabus for this Lecture. Please also provide three references including name, title, phone number and email address.



If selected, the following documentation has to be provided upon your arrival to start the Fall Semester 2018 at Yachay Tech University.

- 1) VALID PASSPORT
- 2) ORIGINAL PhD TITLE (Apostilled in A4 size and TRANSLATED TO SPANISH)
- 3) A certificate from the academic department of your university (Uni XXX) where it states that your PhD program in i.e. Physics was a presence-based modality or classroom-based modality with a duration of XXX years and a brief description of the PhD program. If the document includes the topics you took would be the best! THIS DOCUMENT IS EXTREMELY IMPORTANT!!! (TRANSLATED TO SPANISH AND APOSTILLED OR LEGALIZED) The legalization of this document can even be done here at a Legal Office and it is not expensive but the document has to be already translated into Spanish.
A simple letter from any academic department certifying this information is more than enough.
NOT YOUR PHD SUPERVISOR!
- 4) Your PhD Thesis in digital form on a CD
- 5) Finally, the name and email from a person at the Uni. XXX who SENEcyT could contact in order to confirm the previous information.
- 6) Police Record from your last country of living.

Posting Date:

August 7, 2018

Closing Date (Open until Wednesday 15th August 12hrs – Ecuadorian Time)

Yachay Tech Contact Information:

Questions or concerns can be directed to the School of Physical Sciences and Nanotechnology Office at +593 62 999130 – Ext. 2612 or emailed emedina@yachaytech.edu.ec

Sincerely,

Dr. Ernesto Antonio Medina Dagger
DECANO DE LA ESCUELA DE CIENCIAS
FÍSICAS Y NANOTECNOLOGÍA