Curriculum Vitae

Personal information

Surname / First name	**Rojas Cely Clara Inés**
Address	Calle Antonio Ante con Matovelle EO5-17. Urcuquí. Ecuador.
Telephone	0997054200 (mobile)
Personal Email	clararoj@gmail.com
Home page	https://sites.google.com/site/clararoj/
Nationality	Venezuelan
Date of birth	January 17th, 1979
Gender	Female

Education

- $09/2001 - 07/2007$

  Ph.D. Physics

  Venezuelan Institute for Scientific Research (IVIC)

  Thesis: "Computation of Inflationary Cosmological Perturbations in Some Inflationary Models using Semiclassical Methods"

  Advisor: Dr. Víctor M. Villalba (Center for Physics - IVIC)

- $01/1996 - 07/2001$

  B.S. Physics

  Carabobo University (UC)

  Thesis: "Simulation of Reverse Buoyancy in 2D"

  Advisor: Dr. Ricardo Paredes (Center for Physics - IVIC)

  Class place: Third (3rd)

Grants

• $09/2001 - 07/2006$	FONACIT Grant
• $01/1997 - 01/2001$	FUNDAYACUCHO Grant
• $1998 - 2000$	Grant of Stimulate to the Excellence - Government of the Carabobo State

Scientific work experiences

• $09/2017 - Present$	Professor/Researcher School of Physical Science and Nanotechnology Yachay Tech
• $05/2016 - 05/2018$	Research Associate III-3 Laboratory of Dispersions and Interfaces CEIF - IVIC
• $05/2015 - 05/2016$	Research Associate III-2 Laboratory of Dispersions and Interfaces CEIF - IVIC
• $05/2014 - 05/2015$	Research Associate III-1 Laboratory of Dispersions and Interfaces CEIF - IVIC
• $05/2013 - 05/2014$	Research Associate II-3 Laboratory of Dispersions and Interfaces CEIF - IVIC
• $05/2012 - 05/2013$	Research Associate II-2 Laboratory of Dispersions and Interfaces CEIF - IVIC

• $05/2011 - 05/2012$	Research Associate II-1 Laboratory of Dispersions and Interfaces CEIF - IVIC
• $05/2010 - 05/2011$	Postdoctorante III Laboratory of Dispersions and Interfaces CEIF - IVIC
• $05/2009 - 05/2010$	Postdoctorante II Laboratory of Dispersions and Interfaces CEIF - IVIC
• $05/2008 - 05/2009$	Postdoctorante I Department of Applied Physics IVIC/Mérida
• $04/2008 - 05/2008$	Professional in Training Laboratory of Physical Chemistry of Colloid Center for Physics - IVIC
• $01/2008 - 04/2008$	Professional in Training Laboratory of Computational Physics Center for Physics - IVIC
• $06/2007 - 09/2007$	Professional in Training Laboratory of Computational Physics Center for Physics - IVIC
• $01/2001 - 06/2001$	Assistant Student Laboratory of Statistical Physics and Disordered Systems Center for Physics - IVIC
• $04/2000 - 10/2000$	Half-year Intern Physics Department - Simón Bolívar University
• $05/1999$	Student in Training Laboratory of Atoms, Molecules and Fields Center for Physics - IVIC

• $03/1998 - 04/1998$	Student in Training Laboratory of Condensed Matter Center for Physics - IVIC
• $12/1997$	Student in Training Laboratory of Condensed Matter Center for Physics - IVIC

Academic work experience

• $03/2015 - 09/2015$	Sub-coordinator of Physics Graduate Physics Center IVIC
• $03/2008 - 07/2008$	Professor of Physics I Physics Department Faculty of Science - UCV
• $07/1998 - 08/2001$	Undergraduate Teaching Assistant of Mathematics II Mathematics Deparment - UC

Recognitions

• $2016 - 2017$	PEII Rechearcher A-2
• $2013 - 2015$	PEII Rechearcher A-2
• $2011 - 2013$	PEII Rechearcher A
• $2005 - 2009$	Research Candidate in the Venezuela Foundation for Promotion of Research No. 6927
• 2000	Recognition for Placing Among the top 3 Students in the 4th year

- 1998 — Recognition for Placing 1st Among the Students in the 2nd year

- 1997 — Recognition for Placing 1st Among the Students in the 1st year

  Button of the City. Municipal Council of Valencia

Scientific Meetings

- 12/2014 — Scattering solutions of the Klein-Gordon equation for a step potential with hyperbolic tangent potential
  Clara Rojas
  VIII National Congress of Physics 2014
  Tucacas, Venezuela

- 06/2014 — Effect of Surfactant Concentration and Ionic Strength on the Aggregation Rate of Hexadecane in Water Nanoemulsions
  N. García-Valera, **C. Rojas**, K. Rahn-Chique, S. Di Scipio, E. Cruz-Barrios and G. Urbina-Villalba
  4th International Colloids Conference
  Madrid, España

- 07/2013 — I Meeting in Research in Applied Physics
  Participant and member of the organizing committee
  IVIC, Venezuela

- 11/2012 — Development of analytical models for the turbidity of oil/water ionic nanoemulsions
  Clara Rojas, Kareem Rahn-Chique, Antonio M. Puertas, Manuel S. Romero-Cano and Germán Urbina Villalba
  IV Congreso de Físico-Química Teórica y Computacional
  Caracas, Venezuela

- 05/2012

Evaluation of the flocculation rates of ionic nanoemulsions from turbidity measurements

Kareem Rahn-Chique, Antonio M. Puertas, Manuel S. Romero-Cano, **Clara Rojas** and Germán Urbina Villalba

Nanoformulation 2012

Barcelona, España

- 12/2009

Lifetime of micrometric drops of oil pressed by buoyancy against a planar interface

Clara Rojas, Germán Urbina Villalba and Máximo García Sucre

VII Congress of the Venezuelan Society of Physics

Caracas, Venezuela

- 05/2007

The Phase-Integral Approximation for Inflationary Cosmological Perturbations

Clara Rojas

VI Conference of Mathematical Applications

Valencia, Venezuela

- 10/2005

Third Chilean School of Astrophysics, Cosmology and Gravitation

Santiago, Chile

- 12/2004

Transmission Resonances of Klein-Gordon Equation

Clara Rojas

Meeting of Physics of High Energies and Theory of Fields, FAE04

Sartenejas, Venezuela

- 11/2003

The Klein-Gordon Equation with the Woods-Saxon Potential Well

Clara Rojas

IV Venezuelan Physics Meeting

Isla de Margarita, Venezuela

- 11/2001 — III Venezuelan Physics Meeting
  Caracas, Venezuela

- 11/2000 — VI Hechicera School of Relativity, Fields and Astrophysics
  Mérida, Venezuela

- 11/1999 — V Hechicera School of Relativity, Fields and Astrophysics
  Mérida, Venezuela

- 07/1999 — Atmospheric Optical Thickness
  W. Brämer-Escamilla and **Clara Rojas**
  Exhibition of Works of Investigation and Artistic Samples
  Valencia, Venezuela

- 11/1998 — IV Hechicera School of Relativity, Fields and Astrophysics
  Mérida, Venezuela

- 04/1997 — Opening of the Oil Industry. Towards where it Leads to us?
  Valencia, Venezuela

Courses

- 2011 — S01: An Overview of Mathematica for Education and Research.
  Duración: 8 horas
  USB

- 2009 — Course of Surfactants and Applications. Level I.
  Duration: 32 hours
  FIRP Laboratory

- 2005 — The Physics of Geometric Algebras
  Duration: 3 hours
  IVIC

- 1997

C++ Programing Course
Duration: 40 hours
UC

Physical Principles of Laser Holography
Duration: 4 hours
UC

Students

- 2019

Truman Tapia. Bachelor student from 01/2019 to currently.

Carlos Cocha. Bachelor student from 01/2019 to currently.

Eduardo López. Bachelor student from 01/2019 to currently.

- $2018 - 2019$

Luis Puente. Bachelor student from 08/2019 to 07/2019.

- 2015

Jonathan Guedez. Intern from 29/06/2015 to 01/12/2015.

- 2012

Favio Vázquez. Intern from 03/08/2012 to 14/09/2012.

- 2008

Manuel Vielma. Intern from 18/08/2008 to 15/09/2008.

Subjects

- $01/2019 - 05/2019$

Mathematical Physics II
School of Physical Science and Nanotechnology - Yachay Tech University

- $01/2019 - 05/2019$

Introduction to Special and General Relativity
School of Physical Science and Nanotechnology - Yachay Tech University

• $08/2018 - 12/2018$	Introduction to Astrophysics and Cosmology School of Physical Science and Nanotechnology - Yachay Tech University
• $08/2018 - 12/2018$	Mathematical Physics II School of Physical Science and Nanotechnology - Yachay Tech University
• $06/2018$	Some Topics in Relativistic Quantum Mechanics School of Physical Science and Nanotechnology - Yachay Tech University
• $01/2018 - 05/2018$	Introduction to Special and General Relativity School of Physical Science and Nanotechnology - Yachay Tech University
• $01/2018 - 05/2018$	Physics II School of Physical Science and Nanotechnology - Yachay Tech University
• $09/2017 - 12/2017$	Physics II School of Physical Science and Nanotechnology - Yachay Tech University

• $03/2015 - 07/2015$	Introduction to Research I and II Physics Center - IVIC
• $09/2013 - 02/2014$	Introduction to Research I and II Physics Center - IVIC
• $03/2012 - 07/2012$	Quantum Mechanics Physics Center - IVIC
• $03/2011 - 07/2011$	Introduction to Research I Physics Center - IVIC

Skills

Theoretical	I have worked with semi-classical methods in Inflationary Cosmology (WKB, phase-integral method and uniform approximation method) and in relativistic quantum mechanics, particularly studying the scattering solutions of the Klein-Gordon equation with different potentials barriers also bound states solutions. I am a specialist in analytical study of physical mathematical equations through symbolic manipulation software specifically Mathematica and Maple. Also I have a little experience with numerical simulation in Colloids.
Languages	Spanish, English
Computer Literacy	Linux, Windows, LaTeX, C, C++, Fortran 90, Maple, Mathematica

Refereed Publications

• 2019

[21] **Clara Rojas**. Study of superradiance in the Lambert-W potential barrier. *Int. J. Mod. Phys. A*, $34:16$.

2015

[20] **Clara Rojas**. Scattering of a relativistic particle by a step potential with hyperbolic tangent potential. *Acta Científica Venezolana*, $66:3$.

[19] Y. Mendoza, K. Rahn-Chique, N. García-Valera, E. Cruz-Barrios, **Clara Rojas** and G. Urbina-Villalba. On the physical significance of the adjusting parameters in the evaluation of the flocculation rate of an oil-in-water nanoemulsion. *INTERCIENCIA.* $40:519$.

[18] I. Sánchez, A. Díaz, B Guerrero, Y Trosel and **Clara Rojas**. Improved model for the U-tube granular instability: Analytical solution and delayed coupling. *Mech. Res. Commun.* $67:1$.

• 2014

[17] **Clara Rojas**. Scattering solutions of the Klein Gordon equation for a step potential with hyperbolic tangent potential. *Mod. Phys. Lett. A* $29:1450146$.

[16] **Clara Rojas**. Scattering of a scalar relativistic particle by the hyperbolic tangent potential. *Can. J. Phys.*, $10.1139/cjp-2014-0309$.

• 2012

[15] **Clara Rojas**, Máximo García Sucre and Germán Urbina Villalba. Influence of the time-dependet surfactant adsorption on the lifetime of a drop pressed by buoyancy against a planar interface. M. García Sucre, A. Lozsan, A. Castellanos Suárez and J. Toro Mendoza. *Topics in Colloidal Aggregation and Interfacial Phenomena*, pp. 267. India: Research Signpost.

[14] Kareem Rahn-Chique, Antonio M. Puertas, Manuel S. Romero-Cano, **Clara Rojas** and Germán Urbina-Villalba. Evaluación de la velocidad de floculación de nanoemulsiones aceite/agua. 2) Predicción de la turbidez de una dispersión dodecano/agua estabilizada con dodecil sulfato de sodio. *INTERCIENCIA*, $37:582$.

[13] Kareem Rahn-Chique, Antonio M. Puertas, Manuel S. Romero-Cano, **Clara Rojas** and Germán Urbina-Villalba. Evaluación de la velocidad de floculación de nanoemulsiones aceite/agua. 1) Desarrollo de expresiones teóricas para la turbidez de una nanoemulsión . *INTERCIENCIA*, $37:577$.

[12] Kareem Rahn-Chique, Antonio M. Puertas, Manuel S. Romero-Cano, **Clara Rojas** and Germán Urbina-Villalba. Nanoemulsion stability: experimental evaluation of the flocculation rate from turbidity measurements. *Adv. Coll. Int. Sci.*, $178:1$.

[11] **Clara Rojas** and Víctor M. Villalba. Computation of the power spectrum in chaotic $\frac{1}{4}\lambda\phi^4$ inflation. *JCAP,* 01.

• 2010

[10] **Clara Rojas**, Germán Urbina-Villalba y Máximo García-Sucre. Lifetime of oil drops pressed by buoyancy against a planar interface: Large drops. *Phys. Rev. E*, $82:056317$.

[9] **Clara Rojas**, Germán Urbina-Villalba y Máximo García-Sucre. Lifetime of micrometric drops of oil pressed by buoyancy against a planar interface. *Phys. Rev. E*, $81:016302$.

• 2009

[8] **Clara Rojas** and Víctor M. Villalba. Computation of Inflationary Cosmological Perturbations in Chaotic Inflationary Scenarios using the Phase-Integral Method. *Phys. Rev. D*, $79:103502$.

- 2008

[7] **Clara Rojas**. El Método de Fase Integral Aplicado a Perturbaciones Cosmológicas Inflacionarias. *FARAUTE*, 3.

- 2007

[6] Víctor M. Villalba and **Clara Rojas**. Application of the Phase-Integral Method in Some Inflationary Scenarios. *J. Phys.: Conf. Ser.*, 66 : 012034.

[5] **Clara Rojas** and Víctor M. Villalba. Computation of Inflationary Cosmological Perturbations in the Power-Law Inflationary Model using the Phase-Integral Method. *Phys. Rev. D*, 75 : 063518.

[4] Víctor M. Villalba and **Clara Rojas**. Scattering of a Relativistic Scalar Particle by a Cusp Potential. *Phys. Lett. A*, 362 : 21.

- 2006

[3] **Clara Rojas** and Víctor M. Villalba. The Klein-Gordon Equation with the Woods-Saxon Potential Well. *Rev. Mex. Fis.*, 52 : 127.

[2] Víctor M. Villalba and **Clara Rojas**. Bound States of the Klein-Gordon Equation in the Presence of Short Range Potentials. *Int. J. Mod. Phys. A*, 21 : 313.

- 2005

[1] **Clara Rojas** and Víctor M. Villalba. Scattering of a Klein-Gordon Particle by a Woods-Saxon Potential. *Phys. Rev. A*, 71 : 052101.