



Address:
Alfredo Pareja y Av. Ilaló s.n.,
Urbanización Fátima, casa 21,
Conocoto,
Quito — Ecuador
Contact Information:
Phone: +593(2)6011885
Cell: +593(9)8867827
jrmayorga@espe.edu.ec
jrmayorgaz@gmail.com

CURRICULUM VITAE

Juan Mayorga-Zambrano

Personal Information

Place of birth • Ambato—Ecuador
Date of birth • 22.10.1976
Nationality, Passport number • Ecuadorian, 180237740-6

Pregrade title: Mathematician, 2001
Senescyt registry code: 1001-02-229530

Postgrade title: Ph.D., Sciences for Engineering with mention in Mathematical Modeling, 2006
Senescyt registry code: CL-10-1879

Research Interest: Mathematical Modeling, Nonlinear Partial Differential Equations, Variational Problems, Mathematical Physics, Quantum Mechanics, Theory of Operators, Mathematical Education

Other areas of interest: Organization of Research Areas

Last positions

Member • (April 2011 — ?) Scientific Editorial Board of the journal “Revista Emprendedismo y Estrategia Organizacional”, ESPE (Ecuador)

Coordinator • (May 2011 - December 2011) Cooperation agreement URCI 2011-175 between ESPE (Ecuador) and Saint Petersburg State Polytechnical University (Russia).

Member • (December 2010 — ?) Scientific Editorial Board of the journal “Revista Técnica Científica de Postgrado”, ESPE (Ecuador)

Director • (December 2010 - ?) Master program in Math Teaching, ESPE (Ecuador)

Research Professor • (March 2009 - ?) Full time, Departamento de Ciencias Exactas, ESPE (Ecuador)

Postdoctoral Researcher • (October 2007 - October 2008) Department of Mathematics, Technion (Israel)

Postdoctoral Researcher • (August 2006 - July 2007) Instituto de Matemática y Física, Universidad de Talca (Chile)

Researcher • (March 2005 - August 2005) CEREMADE, Université Paris IX Dauphine (France)

Researcher • (August 2002 - July 2006) Departamento de Ingeniería Matemática, Universidad de Chile (Chile)

Researcher • (September 2001 - March 2002) Institute für Mathematik, Universität Wien (Austria)

- Education
- Academic distinctions
- Publications
- Works in progress
- Academic experience
- Academic activities
- Others

EDUCATION

Graduate

- **Universidad de Chile, 2006,**
Santiago—Chile
Title: Ph.D., Sciences for Engineering with mention in Mathematical Modeling;
Senescyt registry code: CL-10-1879
PhD thesis dissertation topic:
Mathematical results in Quantum Mechanics: Multiplicity and concentration for the nonlinear Schrödinger equation with critical frequency and Compactness properties for trace class operators;

Undergraduate

- **Escuela Politécnica Nacional, 2001,**
Quito—Ecuador
Title: Mathematician;
Senescyt registry code: 1001-02-229530
Master thesis dissertation topic:
Existence and Multiplicity of solutions for non-differentiable problems involving the p-Laplacian operator;

ACADEMIC DISTINCTIONS

Technion
(Israel)

- Scholarship for postdoctoral studies, October 2007 - September 2008

Fundación Andes
(Chile)

- Scholarship for postdoctoral studies in Universidad de Talca, August 2006 - July 2007

Universidad de Chile
(Chile)

- Doctoral medal, generation 2006

Ministerio de Educación
(Chile)

- MECESUP scholarship for doctoral studies, 2002 - 2006

Universität Wien
(Austria)

- Scholarship for doctoral studies, September 2001 - March 2002

Escuela Politécnica
Nacional

- Best graduate, generation 2001
- Suma Quan Laude, 2001
- Best academic record of the School of Sciences, Escuela Politécnica Nacional, 1999
- Representant to the First Iberoamerican Olympics in Mathematics, Guayaquil-Ecuador, 1998
- Vicepresident of the Science Students Association, 1997–1998

Instituto Superior
Guayaquil

- Fourth best student, 1993—1994
- President of the Students Association, 1993—1994
- Scholarship provided by the Patronage for Children's Protection (Tungurahua's Province Council), 1988—1994

Liceo
Juan Montalvo

- Best student of the generation, 1987—1988

SCIENTIFIC PUBLICATIONS ON MATHEMATICS

- Mayorga-Zambrano, J
A mathematical model to describe Ponzi schemes
Revista Emprendedorismo y Estrategia Organizacional, Vol.1, Págs. 1-13, 2011
Authorized reprint: Analítika, Revista de Análisis Estadístico, No. 1, Págs. 121-135, 2011
- Mayorga-Zambrano, J. & Wolansky, G.
The Fokker-Planck equations on the Torus: time discretization of the non-reversible case,
ESPE Ciencia y Tecnología, Vol. 3, No. 1, pp.67-80, 2011
- Mayorga-Zambrano, J. & García, J.
Puntos críticos sin derivar
ESPE Ciencia y Tecnología, Vol. 3, No. 1, pp. 57-65, 2011
- Mayorga-Zambrano, J.
LiLMOD: Una herramienta matemática para incrementar la competitividad leal en instituciones educativas,
ESPE Ciencia y Tecnología, Vol. 2, No. 2, pp.37-49, 2009,
- Dolbeault, J., Felmer, P. and Mayorga-Zambrano, J.
Compactness properties for Trace-class operators and applications to Quantum Mechanics,
Monatshefte für Mathematik., DOI 10.1007/s00605-008-0533-5, 2008.
- Felmer, P. and Mayorga-Zambrano, J.,
Multiplicity and concentration for the nonlinear Schrödinger equation with critical frequency,
Nonlinear Analysis, Vol 66/1 pp 151-169, 2007.
- Calahorrano-Recalde, M. and Mayorga-Zambrano, J.,
A discontinuous problem with quasilinear operator,
Rev. Colombiana Mat. 35, no. 1, 111, 2001.

ACADEMIC WORKS ON MATHEMATICS

- Del Pino, C. y Mayorga-Zambrano, J.
Un modelo matemático para calificar dentro de un Sistema de Evaluación basado en Competencias,
Universidad de Talca, 2008.
- Mayorga-Zambrano, J.,
Cálculo Diferencial para Ingeniería (versión 1.1),
Wikibooks: http://es.wikibooks.org/wiki/C%C3%A1lculo_en_una_variable, 2007.
- Mayorga-Zambrano, J.
Bases Hilbertianas y Series de Fourier en L^2
Apuntes de Curso ESPE, Vol. 01, No.01, 2010
- Mayorga-Zambrano, J.
Espacios Vectoriales Topológicos, Espacios Localmente Convexos y Distribuciones
Apuntes de Curso ESPE, Vol. 01, No.02, 2010
- Mayorga-Zambrano, J.
Distribuciones temperadas y Transformada de Fourier
Apuntes de Curso ESPE, Vol. 01, No.03, 2010

WORKS ON ORGANIZATION OF RESEARCH AND INNOVATION AREAS

- Mayorga-Zambrano, J.
Informe técnico: Plan de Formación de Cuarto Nivel
ESPE, 2011.
- Mayorga-Zambrano, J. & Flores, M.
Lineamientos para la creación de un programa de Maestría en Ciencias de la Ingeniería
ESPE, 2011.
- Mayorga-Zambrano, J.
Informe técnico: Programa de Maestría en Planificación y Ejecución Operativa y Estratégica Militar
ESPE, 2011.
- Mayorga-Zambrano, J.
Proyecto de Maestría en Enseñanza de la Matemática
Resolución Conesup RCP.S10.No.267.10,
ESPE, 2010.
- Mayorga-Zambrano, J. & Flores, M. & Medina, P.
Proyecto de Reglamento de Carrera Académica de la ESPE
Departamento de Ciencias Exactas, ESPE, 2010.
- Mayorga-Zambrano, J.
Selección de estudiantes de postgrado mediante modelamiento matemático
Departamento de Ciencias Exactas, ESPE, 2010
- Mayorga-Zambrano, J.
Una estrategia para mejorar la competitividad de la Universidad Privada ecuatoriana mediante I& I,
Universidad Tecnológica Indoamérica, 2008.
- Mayorga-Zambrano, J.
UTI: Calidad y Competitividad
(Visión, Políticas y Herramientas de IID para Universidad Tecnológica Indoamérica),
Universidad Tecnológica Indoamérica, 2008.

WORKS IN PROGRESS

- Mayorga-Zambrano, J., Medina, P. and Molina, A.
Redacción de Textos Científicos
- Mayorga-Zambrano, J. and Medina, P.
Análisis del Potencial Investigativo Humano mediante Modelamiento Matemático
- Mayorga-Zambrano, J.
Matemática Superior para Ingeniería con ayuda de Maxima (book under revision process)
- Mayorga-Zambrano, J., Wolansky, G. and Saucan, E.
The relation between Ricci flow and Mass Transport.
- Dolbeault, J., Mayorga-Zambrano, J. and Méhats F.,
Quantum drift-diffusion by mass transportation techniques.
- Mayorga-Zambrano, J.
Simulation of Ponzi schemes
- Mayorga-Zambrano, J. and Quituisaca, L.,
Simulación de Esquemas Piramidales tipo Ponzi
- Mayorga-Zambrano, J. and Salinas, Z.,
Sovolev-like cones in non-bounded domains: interpolation and compactness properties

ACADEMIC EXPERIENCE

INEC

Quito—Ecuador

- Member of the Editorial Board of the journal “Analítica: Revista de Análisis Estadístico”
October 2011 — ?

ESPE

Sangolquí—Ecuador

- Coordinator of the cooperation agreement URCI 2011-175 between ESPE and Saint Petersburg State Polytechnical University (Russia)
May 2011 — ?
- Member of the Editorial Board of the journal “Revista Técnica Científica de Postgrado”
April 2011 — ?
- Postgrade lecturer
July 2011—August 2011
Course lectured: Mathematical Analysis
Doctoral Seminar: Advanced Mathematics for Research in Engineering
- Director of the postgrade program “Master in Math Teaching”, CONESUP RCP.S10.No.267.10
December 2010 — ?
- Member of the Editorial Board of the journal “Revista Emprendedorismo y Estrategia Organizacional”
November 2010 — ?
- Head of the postgrade project “Master in Applied Mathematics for Engineering”
August 2009 — ?
- Full time research professor
March 2009—?
Courses lectured: Advanced Mathematics for Engineering, Mathematical Analysis, Linear Algebra, Advanced Calculus

Universidad Técnica de Ambato

Ambato—Ecuador

- Postgrade lecturer
April 2011—June 2011
Course lectured: Advanced Statistics

Escuela Politécnica Nacional

Quito—Ecuador

- Postgrade lecturer
December 2010—February 2011
Course lectured: Probability Theory

Universidad Técnica de Ambato

Ambato—Ecuador

- Postgrade lecturer
August 2010—October 2010
Course lectured: Applied Econometry

Escuela Politécnica Nacional

Quito—Ecuador

- Lecturer
March 2009—August 2010
Courses lectured: Mathematical Analysis, Functional Analysis

ACADEMIC EXPERIENCE (continúa)

Universidad Técnica de Ambato

Ambato—Ecuador

- Postgrade lecturer
May 2009—July 2009
Course lectured: Probability Theory and Statistics

Technion

Haifa—Israel

- Full time Postdoctoral Researcher
October 2007—October 2008
Supervisor: Gershon Wolansky, PhD

Universidad de Talca

Talca—Chile

- Full time Postdoctoral Researcher
August 2006—June 2007
- Lecturer
August 2006—July 2007
Course lectured: Differential Calculus

Université Paris IX Dauphine

Paris—France

- Full time researcher
March 2005—August 2005
Supervisor: Jean Dolbeault, PhD

Universidad de Chile

Santiago—Chile

- Teaching Assistant
August 2005—December 2005
Course lectured: Applied Mathematics
- Teaching Assistant
August 2003—December 2003
Course lectured: Mathematical Physics Equations

Universität Wien

Vienna—Austria

- Full time researcher in the Wissenschaftskolleg (PhD program) in Partial Differential Equations
September 2001—March 2002
Supervisor: Peter Markowich, PhD

Escuela Politécnica

Nacional

Quito—Ecuador

- Lecturer
April 2002—July 2002
Course lectured: Ordinary Differential Equations, Statistics, Applied Calculus, Linear Algebra

Universidad Tecnológica

Indoamérica

Ambato—Ecuador

- Lecturer
October 2000—August 2001
Course lectured: Operations Research, Numerical Methods, Models and Simulation, Statistics for Management

ACADEMIC ACTIVITIES

- 2011**
- Speaker in *II Congreso Internacional Economía y Finanzas*, Escuela Politécnica Nacional, Quito—Ecuador
“Un modelo matemático para esquemas piramidales tipo Ponzi”
 - Speaker in *VI Congreso de Ciencia y Tecnología*, ESPE, Sangolquí—Ecuador
“Un modelo matemático para esquemas piramidales tipo Ponzi”
 - I. Medina, P. and Mayorga-Zambrano, J. and Flores, M., Informe referencial de precios para el V Censo de Población y Vivienda (INEC).
 - I. Medina, P. and Mayorga-Zambrano, J. and Flores, M. and Castillo, S., Asesoría para la Organización de Áreas de Investigación de la Universidad Estatal de Milagro.
 - Mayorga-Zambrano, J. and Medina, P., Análisis del Proyecto ESPENET de Lutrol Interactive
 - Representant of ESPE in *Asamblea General de la Asociación Universitaria Iberoamericana de Postgrados (AUIP) 2011*, Universidad Simón Bolívar, Barranquilla—Colombia
- 2010**
- Speaker in *XII Encuentro de Matemática y sus Aplicaciones*, Escuela Politécnica Nacional, Quito—Ecuador
“LiLMOD: Una herramienta matemática para incrementar la competitividad leal en instituciones educativas”
 - Speaker in *XII Encuentro de Matemática y sus Aplicaciones*, Escuela Politécnica Nacional, Quito—Ecuador
“The Fokker-Planck equations on the torus: time discretization on the non-reversible case”
 - Speaker in *XII Encuentro de Matemática y sus Aplicaciones*, Escuela Politécnica Nacional, Quito—Ecuador
“Puntos críticos sin derivar”
 - Speaker in *EspolCiencia 2010*, Escuela Politécnica del Litoral, Guayaquil—Ecuador
“LiLMOD: Una herramienta matemática para incrementar la competitividad leal en instituciones educativas”
- 2009**
- Speaker in *Sexta Conferencia Italo-Latinoamericana de Matemática Aplicada e Industrial ITLA66*, Escuela Politécnica Nacional, Quito—Ecuador
“Compactness properties for trace-class operators and applications to Quantum Mechanics”
- 2008**
- Speaker in *Nonlinear Analysis and Optimization Seminar*, Technion, Haifa—Israel
“Compactness properties for Trace-class operators and applications to Quantum Mechanics”
 - Participant in the *Workshop on Variational Methods for Nonlinear PDE and their Applications*, Technion, Haifa—Israel
- 2007**
- Speaker in *PDE and Applied Mathematics Seminar*, Technion, Haifa—Israel
“Multiplicity and concentration for the nonlinear Schrödinger equation with critical frequency”
 - Speaker in *III Taller de Análisis y Ecuaciones de Evolución*, Universidad de Santiago de Chile, Santiago—Chile
“Propiedades de compacidad para Operadores de Traza y aplicaciones a la Mecánica Cuántica”

ACADEMIC ACTIVITIES (continúa)

- 2005**
- Research stage (6 months), CEREMADE, Université Paris Dauphine, Paris—France
 - Participant of the *Workshop on nonlinear spectral problems and mean field models*, Henri Poincare Institute, Paris—France
 - Participant of the *Workshop on Monge-Kantorovich optimal transportation*, University of Orleans, Orleans—France
 - Research stage (1 week), MIP, Université Paul Sabatier Toulouse 3, Toulouse—France
- 2004**
- Speaker in the *Encuentro SOMACHI 2004*, Olmué—Chile
“Concentration of an infinite number of solutions for the nonlinear Schrödinger Equation with critical frequency”
- 2003**
- Participant of the *Workshop and Conference on Recent trends in Nonlinear Variational Problems*, ICTP, Trieste—Italy.
 - Participant in the *PanAmerican Advanced Studies Institute (PASI) on Partial Differential Equations, Inverse Problems and NonLinear Analysis*, Centro de Modelamiento Matemático (CMM), Universidad de Chile, Santiago—Chile
- 2002**
- Speaker in the *First Meeting of Mathematics PhD students*, Departamento de Ingeniería Matemática, Universidad de Chile, Santiago—Chile
“A discontinuous problem with quasilinear operator”
 - Courses I and II of German language, Hochschulkurse, Universität Wien, Vienna—Austria
 - Speaker in the *VII Encuentro de Matemática Pura y Aplicada*, Escuela Politécnica Nacional, Quito—Ecuador
“A discontinuous problem with quasilinear operator”
- 2001**
- One semester of *Wissenschaftskolleg (program of PhD) in Partial Differential Equations*, Universität Wien—Technische Universität Wien, Vienna—Austria
Research field: Stability of stationary solutions of non-linear problems in Quantum Mechanics
- 1999**
- Participant of the *Summer Course Program Alfa (Primcas)* of the European Community, Universidad Central, Quito—Ecuador
- 1998**
- Participant in the *VI Encuentro de Matemática Pura y Aplicada*, Escuela Politécnica Nacional, Quito—Ecuador

OTHERS

- Coordinator of Noahide Teaching and Activities under supervision of Rabbi Tomer Rotem, Jabad Ecuador, January 2011 - ?
- Member of the staff of UNO (Universidad Noájida), <http://noajidas.org/>, April 2009 - March 2011
- Translation from English to Spanish (2008) of “*The Real Messiah?*”, A. Kaplan, National Conference of Synagogue Youth, 2000
- International Coordinator (2007) of *Fundación Luz de Vida Internacional*, <http://fulvida.com>
- Representant in Chile (2006) of *Fundación Luz de Vida Internacional*, <http://fulvida.com>
- Translation from English to Spanish (2005) of “*The Path of the Righteous Gentile*”, Clorfene & Rogalsky, Feldheim Publishers, 1987
- Translation from English to Spanish (2004) of “*The Seven Colors of the Rainbow*”, Rabbi Yirmeyahu Bindman, Resource Publications, 1995
- Chess team captain, Escuela Politécnica Nacional, 1994—1998
- 50th place in the World Junior Chess Championship, Halle an der Saale—Germany, 1995
- 70th place in the World Junior Chess Championship, Matinhos—Brazil, 1994
- Chess team captain, Instituto Superior “Guayaquil”, 1988—1994
- 2nd place in the Ecuadorian Junior Chess Championship, 1993 and 1994
- Ecuadorian Junior Chess Champion, 1992