Julio Hugo Toloza

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Curriculum Vitae (short version)

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EDUCATION

- **Doctor of Philosophy - major Physics**, December 2002,
  Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, VA, USA.
  Dissertation: Exponentially Accurate Error Estimates of Quasiclassical Eigenvalues.
  Advisor: George A. Hagedorn, Department of Mathematics.
- **Licenciado en Física**, December 1996,
  Universidad Nacional de Córdoba, Córdoba, Argentina.

RESEARCH INTERESTS

- Functional models of symmetric operators with finite deficiency indices.
- de Branges Hilbert space methods applied to spectral analysis.
- Spectral analysis of one-dimensional Schrödinger operators.
- Semiclassical analysis.

RESEARCH AND TEACHING EXPERIENCE (since 2003)

- Assistant Professor, Universidad Tecnológica Nacional, Facultad Regional Córdoba (Argentina). Since February 2011.
- Researcher, Consejo Nacional de Investigaciones Científicas y Técnicas (Argentina). Since August 2008.
- Researcher, Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas, Universidad Nacional Autónoma de México. January 2005 – March 2008.
- Professor–Researcher, Centro de Investigación en Matemáticas, Universidad Autónoma del Estado de Hidalgo (México). January 2003 – January 2005.

PUBLICATIONS

Journal papers

- A. Kostenko, G. Teschl, J. H. Toloza; *Dispersion estimates for spherical Schrödinger equations*. Ann. Henri Poincaré **17** (2016) 3147–3176.
- L. O. Silva, G. Teschl, J. H. Toloza; *Singular Schrödinger operators as self-adjoint extensions of n-entire operators*, Proc. Amer. Math. Soc. **143** (2015) 2103–2115.
- L. O. Silva, J. H. Toloza; *On dB spaces with nondensely defined multiplication operator and the existence of zero-free functions*, J. Math. Anal. App. **421** (2015) 996–1005.
- L. O. Silva, J. H. Toloza; *A class of n-entire Schrödinger operators*, Complex Anal. Oper. Theory **8** (2014) 1581–1599.
- L. O. Silva, J. H. Toloza; *The class of n-entire operators*, J. Phys. A: Math. Theor. **46** (2013) 025202 (23pp).
- F. M. Pont, O. Osenda, J. H. Toloza, P. Serra; *Entropy, fidelity, and double orthogonality for resonance states in two-electron quantum dots*, Phys. Rev. A **81** (2010) 042518 (9pp).
- L. O. Silva, J. H. Toloza; *On the spectral characterization of entire operators with deficiency indices* $(1, 1)$, J. Math. Anal. Appl. **367** (2010) 360–373.
- L. O. Silva, J. H. Toloza; *Bounded rank-one perturbations in sampling theory*, J. Math. Anal. Appl. **345** (2008) 661–669.
- L. O. Silva, J. H. Toloza; *Applications of Krein's theory of regular symmetric operators to sampling theory*, J. Phys. A: Math. Theor. **40** (2007) 9413–9426; corrigendum J. Phys. A: Math. Theor. **41** (2008) 179801 (1pp).
- L. O. Silva, J. H. Toloza; *Jacobi matrices with rapidly growing weights having only discrete spectrum*, J. Math. Anal. Appl. **328** (2007) 1087–1107.
- G. A. Hagedorn, J. H. Toloza; *Exponentially accurate quasimodes for the time–independent Born–Oppenheimer approximation on a one–dimensional molecular system*, Int. J. Quantum Chem. **105** (2005) 463–477.
- G. A. Hagedorn, J. H. Toloza; *Exponentially accurate semiclassical asymptotics of low–lying eigenvalues for* 2×2 *matrix Schrödinger operators*, J. Math. Anal. Appl. **312** (2005) 300–329.
- J. H. Toloza; *Exponentially accurate error estimates of quasiclassical eigenvalues. II. Several dimensions*, J. Math. Phys. **44** (2003) 2806–2838.
- J. H. Toloza; *Exponentially accurate error estimates of quasiclassical eigenvalues*, J. Phys. A: Math. Gen. **34** (2001) 1203–1218.
- J. H. Toloza, F. A. Tamarit, S. A. Cannas; *Aging in a two-dimensional Ising model with dipolar interactions*, Phys. Rev. B **58** (1998) R8885–R8888.

Conference papers

- C. J. Paz, S. Nesmachnow, J. H. Toloza; *A parallel multilevel data decomposition algorithm for orientation estimation of unmanned aerial vehicles.* First HPCLATAM - CLCAR Latin American Joint Conference, CARLA 2014, Valparaiso, Chile (G. Hernández, C. Barrios Hernández, G. Díaz, C. García Garino, S. Nesmachnow, T. Pérez-Acle, M. Storti, M. Vázquez, eds.), Communications in Computer and Information Science **485** (2014) 206–220.

- L. O. Silva, J. H. Toloza; *The spectra of selfadjoint extensions of entire operators with deficiency indices* $(1, 1)$. Operator Methods in Mathematical Physics: Conference on Operator Theory, Analysis and Mathematical Physics (OTAMP) 2010, Bedlewo, Poland (J. Janas, P. Kurasov, A. Laptev, S. Naboko, eds.), Operator Theory: Advances and Applications **227** (2013) 151–164.

- J. H. Toloza; *Exponentially accurate semiclassical asymptotics.* Mathematical Results in Quantum Mechanics (Taxco, 2001) (R. Weder, P. Exner, B. Grebert, eds.), Contemporary Mathematics **307** (2002) 299–303.

Book chapters

- L. O. Silva, J. H. Toloza; *De Branges spaces and Kreĭn's theory of entire operators*, Operator Theory (D. Alpay, ed.), Springer Basel (2015) 549–580.

PARTICIPATION AT SCIENTIFIC MEETINGS

Contributed talks (since 2010)

- *Perturbaciones de rango uno en espacios de de Branges.* Annual Meeting of the Argentinian Mathematical Union, Bahía Blanca, Argentina, September 2016.

- *Estimaciones dispersivas para el operador de Bessel perturbado.* Annual Meeting of the Argentinian Mathematical Union, Santa Fe, Argentina, September 2015.

- *Operadores n-enteros y la teoría WTK.* XII National Meeting of Analysts "A. P. Calderón," Villa Gral. Belgrano, Argentina, August 2014.

- *Análisis espectral de una clase de operadores de Schrödinger n-enteros.* Annual Meeting of the Argentinian Mathematical Union, Rosario, Argentina, September 2013.

- *A generalization of Krein's theory of entire operators and its application to the spectral analysis of one-dimensional Schrödinger operators.* Mathematical Congress of the Americas 2103, Guanajuato, México, August 2013.

- *N-entire Operators.* IV Latin American Congress of Mathematicians, Córdoba, Argentina, August 2012.

- *El Espectro de las Extensiones Autoadjuntas de Operadores Enteros con Índices de Deficiencia (1,1).* Annual Meeting of the Argentinian Mathematical Union, San Miguel de Tucumán, Argentina, September 2011.

Seminars and colloquia (since 2010)

- *Estimaciones dispersivas para el operador de Bessel perturbado.* Seminario de Ecuaciones Diferenciales y Física Matemática, IIMAS–UNAM, México, February 2015.
- *Espacios de de Branges y operadores de Schrödinger.* Coloquio Tlahuilcalli (Casa de Luz), Universidad Autónoma Metropolitana – Unidad Azcapotzalco, México, January 2015.
- *Schrödinger operators and de Branges spaces.* Mathematical Physics Seminar, Fakultät für Mathematik, Universität Wien, Vienna, Austria, November 2014.
- *Operadores n-enteros, espacios de de Branges, y análisis espectral de (una clase de) operadores de Schrödinger.* Seminario del Instituto Argentino de Matemática (IAM), Buenos Aires, Argentina, July 2014.
- *Los operadores n-enteros.* Seminario de Investigación, CIMA–UAEH, Pachuca, México, March 2013.
- _____ . Seminario de Ecuaciones Diferenciales y Física Matemática, IIMAS–UNAM, México, March 2013.
- *Entrelazamiento en resonancias de sistemas atómicos de dos electrones.* Seminario de Ecuaciones Diferenciales y Física Matemática, IIMAS–UNAM, México, June 2010.

Organization of scientific events

- Member of the Steering Committee of the Spring School on Classical and Quantum Mechanics; IIMAS–UNAM, México D.F., December 2007 – March 2008.
- Organizer of the Mathematical Physics Session of the XL Congress of the Mexican Mathematical Society; Monterrey, México, March – October 2007.
- Member of the Local Steering Committee fo the XXXVI Congress of the Mexican Mathematical Society; Pachuca, México, March – October 2003.