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EDUCATION

1985 B.S., Physics – University of Puerto Rico, Río Piedras Campus. *Magna Cum Laude.*
1989 B.M., Music: Piano – Conservatory of Music of Puerto Rico. *Summa Cum Laude.*
1989 M.S., Physics – University of Puerto Rico, Río Piedras Campus.
1994 Ph.D., Physics – Massachusetts Institute of Technology, Cambridge, MA.

ACADEMIC APPOINTMENTS

1985-1986 Laboratory Technician, Physics Department, University of Puerto Rico.
1986-1989 Research and Teaching Assistant, Physics Dept., University of Puerto Rico.
1991-1994 Research Assistant, MIT Physics Department.
1994-2005 Research Associate, Center for Polymer Studies, Boston University.
2005-2007 Senior Research Associate, Center for Polymer Studies, Boston University.
2007-2008 Research Associate Professor, Physics Department, Boston University.
2008- Associate Professor, Physics Department, Drexel University.

SELECTED PUBLICATIONS (out of 46) (reverse chronological)

[h-index: 19, Total Citations without self-citations: 1568, Average Citations per Publication: 33.50]

1. M. Smith, J. Rao, **L. Cruz**, "Spontaneous Dimer States of the Aβ_{21-30} Decapeptide," *Physical Chemistry Chemical Physics*, *16*(26), 13069–13073 (2014).
2. M. Henderson, B. Urbanc, **L. Cruz**, "A Computational Model for the Loss of Neuronal Organization in Microcolumns," *Biophysical Journal*, *106*, 2233–2242 (2014).
3. J. Srinivasa Rao, M. Smith, **L. Cruz**, "The Stability of a β-hairpin in Aβ(21-30) is altered by Surface-Water Interactions under Confinement," *Journal of Physical Chemistry B*, (2014).
4. M. Smith, **L. Cruz**, "Changes to the Structure and Dynamics in Mutations of Aβ_{21-30} caused by Ions in Solution," *Journal of Physical Chemistry B*, *117*, 14907–14915 (2013).
5. M. Smith, **L. Cruz**, "Effect of Ionic Aqueous Environments on the Structure and Dynamics of the Aβ_{21-30} Fragment: A Molecular-Dynamics Study," *Journal of Physical Chemistry B*, *117*, 6614–6624 (2013).
6. J. Srinivasa Rao, **L. Cruz**, "Effects of Confinement on the Structure and Dynamics of an Intrinsically Disordered Peptide: A Molecular-Dynamics Study," *Journal of Physical Chemistry B*, *117*, 3707–3719 (2013).
7. **L. Cruz**, J. Srinivasa Rao, D. B. Teplow, B. Urbanc, "Dynamics of Metastable β-Hairpin Structures in the Folding Nucleus of Amyloid β-Protein" *Journal of Physical Chemistry B*, *116*, 6311–6325 (2012).
8. B. Urbanc, M. Betnel, **L. Cruz**, H. Li, E. A. Fradinger, B. H. Monien, and G. Bitan, "Structural basis for Aβ_{1-42} toxicity inhibition by Aβ C-terminal fragments: Discrete molecular dynamics study," *J. Mol. Biol.*, *410*, 316–328 (2011).
9. B. Urbanc, M. Betnel, **L. Cruz**, G. Bitan, and D. B. Teplow "Elucidation of amyloid β-protein oligomerization mechanisms: Discrete molecular dynamics study," *J. Am. Chem. Soc.*, *132*, 4266–4280 (2010).
10. **L. Cruz**, D. L. Roe, B. Urbanc, A. Inglis, H. E. Stanley, and D. L. Rosene, "Age-related reduction in microcolumnar structure correlates with cognitive decline in the ventral but not dorsal region part of area 46 of the rhesus monkey," *Neuroscience*, *158*, 1509–1520 (2009).
11. E. A. Fradinger, B. H. Monien, B. Urbanc, A. Lomakin, M. Tan, H. Li, S. M. Spring, M. M. Condron, **L. Cruz**, C.-W. Xie, G. B. Benedek, and G. Bitan, "C-terminal peptides coassemble into Aβ42 oligomers and protect neurons against Aβ42-induced neurotoxicity," *Proc. Natl. Acad. Sci.*, **105**, 14175–14180 (2008).
12. **L. Cruz**, B. Urbanc, A. Inglis, D. L. Rosene, and H. E. Stanley, "Generating a model of the Three-dimensional Spatial Distribution of Neurons using Density Maps," *Neuroimage*, **40**(3), 1105–1115 (2008).

13. **L. Cruz**, B. Urbanc, J. M. Borreguero, N. D. Lazo, D. B. Teplow, and H. E. Stanley, "Solvent and Mutation Effects on the Nucleation of Amyloid β-protein Folding," *Proc. Natl. Acad. Sci.*, **102**, 18258–18263 (2005).
14. **L. Cruz**, S. V. Buldyrev, S. Peng, D. L. Roe, B. Urbanc, H. E. Stanley, and D. L. Rosene, "A Statistically Based Density Map Method for Identification and Quantification of Regional Differences in Microcolumnarity in the Monkey Brain," *J. Neuroscience Methods*, **141/2**, 321–332 (2005).
15. B. Urbanc, **L. Cruz**, S. Yun, S. V. Buldyrev, G. Bitan, D. B. Teplow, and H. E. Stanley, "In silico study of amyloid β-protein folding and oligomerization," *Proc. Natl. Acad. Sci.* **101**, 17345–17350 (2004).
16. **L. Cruz**, D. L. Roe, B. Urbanc, H. Cabral, H. E. Stanley, and D. L. Rosene, "Age-related reduction in microcolumnar structure in area 46 of the rhesus monkey correlates with behavioral decline," *Proc. Natl. Acad. Sci.* **101**, 15846–15851 (2004).
17. B. Urbanc, **L. Cruz**, F. Ding, D. Sammond, S. Khare,S. V. Buldyrev, H. E. Stanley, and N. V. Dokholyan, "Molecular Dynamics Simulation of Amyloid β Dimer Formation," *Biophys. J.* **87**, 2310-2321 (2004).
18. B. Urbanc, **L. Cruz**, R. Le, J. Sanders, K. Hsiao–Ashe, K. Duff, H. E. Stanley, M. C. Irrizarry and B. T. Hyman, "Neurotoxic Effects of Thioflavin S-Positive Amyloid Deposits in Transgenic Mice and Alzheimer's Disease," *Proc. Natl. Acad. Sci.* **99**, 13990-13995 (2002).
19. S. V. Buldyrev, **L. Cruz**, T. Gómez-Isla, E. Gómez-Tortosa, S. Havlin, R. Le, H. E. Stanley, B. Urbanc and B. T. Hyman, "Description of Microcolumnar Ensembles in Association Cortex and their Disruption in Alzheimer and Lewy Body Dementias," *Proc. Natl. Acad. Sci.* **97**, 5039–5043 (2000).
20. B. Urbanc, **L. Cruz**, S. V. Buldyrev, S. Havlin, M. C. Irizarry, H. E. Stanley, and B. T. Hyman, "Dynamics of Plaque Formation in Alzheimer Disease," *Biophys. J.* **76**, 1330–1334 (1999).
21. R. B. Knowles, C. Wyart, S. V. Buldyrev, **L. Cruz**, B. Urbanc, M. E. Hasselmo, H. E. Stanley, and B. T. Hyman, "Plaque–Induced Neural Network Disruption in Alzheimer's Disease", *Proc. Natl. Acad. Sci.* **96**, 5274–5279 (1999).
22. **L. Cruz**, B. Urbanc, S. V. Buldyrev, R. Christie, T. Gómez-Isla, S. Havlin, M. McNamara, H. E. Stanley, B. T. Hyman, "Aggregation and disaggregation of Senile Plaques in Alzheimer Disease," *Proc. Natl. Acad. Sci.* **94**, 7612–7616 (1997).
23. **L. Cruz**, P. Phillips, A. Castro-Neto, "Kondo Resonance and log-T Conductivity in Highly Conducting trans-Polyacetylene," *Europhysics Letters* **29**, 389–394 (1995).

HONORS, AWARDS, and ACTIVITIES

* co-Director, Drexel University's *DragonsTeach* program, 2014-present.
* Member, Physics Graduate Record Exam (GRE) *Committee of Examiners*, Educational Testing Service, 2012-present.
* Chair, *Biological Networks and Systems Biology* session X40, APS March Meeting, 2011.
* Who's Who in America, *Marquis Who's Who*, 2011 Edition.
* Who's Who in Medicine and Healthcare, *Marquis Who's Who*, 6 (2006), 7 (2009), and 8th (2011) Eds.
* Jose E. Pedreira Piano Medal, Conservatory of Music of Puerto Rico, 1989.
* Facundo Bueso Physics Medal, University of Puerto Rico, Río Piedras Campus, 1985.
* College of Natural Sciences Medal for Academic Excellence, U. of PR, Río Piedras Campus, 1985.
* Award for the Highest Academic Achievement in the Río Piedras Campus, U. of Puerto Rico, 1985.

SELECTED PROFESSIONAL SERVICE

* Reviewer, *Cerebral Cortex; Proteins: Structure, Function, and Bioinformatics; Journal of the American Chemical Society; Journal of Physical Chemistry; Journal of Physical Chemistry Letters; BioMedCentral Neuroscience; International Journal of Cell Biology; International Journal of Molecular Science; Journal of Molecular Graphics and Modelling.*
* Problem author, *Educational Testing Service*, Physics GRE (2009-present).
* Advisor to the Drexel University *Society of Physics Students* and the Physics Honor Society Chapter of the $\Sigma\Pi\Sigma$, 2011-present.
* Chair, Organizing Committee for the Physics Department 19^{th} *Annual Kaczmarczik* Open House and Lecture. October, 2014.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Physical Society, American Institute of Physics, American Association of Physics Teachers, Biophysical Society, American Chemical Society, Society for Neuroscience, Sigma Xi Scientific Research Society.

COURSES

Physics 102:	Fundamentals of Physics II	Winter 2009; Fall 2011, 2012
Physics 107:	Acoustics	Spring 2010, 2012-14
Physics 114:	Contemporary Physics II	Winter 2013
Physics 262:	Introduction to Biophysics	Winter 2015
Physics 462/562:	Computational Biophysics	Winter 2010, 2012, 2014
Physics 491/492/493:	Senior Research I, II, and III	F/W/S 2012-13, 13-14, 14-15
Physics 501:	Mathematical Physics I	Fall 2010
Physics 502:	Mathematical Physics II	Winter 2011
University 101:	The Drexel Experience	Fall 2011-14