

# Curriculum vitae et studiorum

Davide Reato

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I was born in Verona, Italy, on September 17th, 1983. I live in Harlem, New York, NY, USA.

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## Education

- **2008 -** : PhD student in Biomedical Engineering, Biomedical Engineering Department, City College of the City University of New York. Advisors: Prof. Marom Bikson and Prof. Lucas C. Parra
- **2005-2007:** Master degree (Laurea Magistrale) in Physics (Biophysics), received on October 18, 2007 from the University of Padova, Italy (109/110). Thesis: *Astrocyte-Neuron Interaction in Epileptic Seizures: A Computational Study*. Super-visor: Prof. Renato Nobili. Co-super-visor: Dr. Giorgio Carmignoto.
- **2002-2005:** Bachelor degree (Laurea) in Physics, received on September 28, 2005 from the University of Padova, Italy (99/110). Thesis: *Spatial resolution of cosmic rays tracks identified with muon chambers of CMS*. Supervising Professor: Prof. Anna Teresa Meneguzzo.

- **1997-2002:** High school Diploma, received on July 2, 2002 from Liceo Scientifico Galileo Galilei, Verona, Italy (98/100).
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## Publications

### Regular Papers

1. Davide Reato, Asif Rahman, Marom Bikson, Lucas C. Parra, *Low-intensity electrical stimulation affects network dynamics by modulating population rate and spike timing*, The Journal of Neuroscience, 2010, 30(45):15067-15079.
2. Sridhar Sunderam, Bruce Gluckman, Davide Reato, Marom Bikson. *Toward rational design of electrical stimulation strategies for epilepsy control*, Epilepsy Behavior, 2010; 17(1):6-22.
3. Abhishek Datta, Varun Bansal, Jinal Patel, Julian Diaz, Davide Reato, Marom Bikson, *Gyri precise head model of transcranial DC stimulation: Improved spatial focality using a ring electrode versus conventional rectangular pad*, Brain Stimulation, 2009 2(4):201-7.

### Proceedings

1. Davide Reato, Abhishek Datta, Marom Bikson, Lisa Marshall and Lucas C. Parra *Oscillatory electrical stimulation modulates coherence of human slow wave activity* (oral presentation, Parra), CRCNS PI meeting, Princeton, NJ, October 2011.
2. Davide Reato, Marom Bikson, Lucas C. Parra, *Network dynamics determines the sensitivity of endogenous oscillations to weak electric fields*, CRCNS PI meeting, Princeton, NJ, October 2011.
3. Belen Lafon, Davide Reato, Asif Rahman, Marom Bikson, Lucas C. Parra, *Modulation of homeostatic plasticity with electric field in rat hippocampal slices*, CRCNS PI meeting, Princeton, NJ, October 2011.
4. Asif Rahman, Davide Reato, Thomas Radman, Lucas C. Parra, Marom Bikson, *How dc electric currents affect neuronal excitability is synaptic pathway dependent*, Neuroscience 2011 Washington, DC, USA, November 2011.
5. Davide Reato, Marom Bikson, Lucas C. Parra, *Plastic Effects Of Electrical Stimulation On Slow Waves Activity: A Computational Study*, Biomedical Engineering Society (BMES) meeting 2011, Hartford (Connecticut) US, October 2011.
6. Asif Rahman, Davide Reato, Lucas C. Parra, Marom Bikson, *Synaptic Pathway-Dependent Effects of DC Electric-Fields In Rat Cortical Brain Slices*, Biomedical Engineering Society (BMES) meeting 2011, Hartford (Connecticut) US, October 2011.

7. Davide Reato, Marom Bikson, Lucas C. Parra, *Intrinsic network dynamics govern sensitivity to weak electric fields: Adaptation, modulation, and sub-harmonic pacing*, Neuroscience 2010 San Diego, USA, November 2010.
8. Asif Rahman, Thomas Radman, Davide Reato, Marom Bikson, *Effects of weak direct current stimulation on synaptic plasticity in rat motor cortex in-vitro; electrophysiological and molecular analysis of mechanisms*, Neuroscience 2010 San Diego, USA, November 2010.
9. Asif Rahman, Thomas Radman, Abhishek Datta, Davide Reato, Marom Bikson, *Effects of short and long-duration DC electric fields on synaptic efficacy in rat motor cortex slices*, II International Symposium in Neuromodulation, São Paulo, Brazil, March 2010.
10. Thomas Radman, Asif Rahman, Abhishek Datta, Davide Reato, Marom Bikson, *Low-amplitude DC electric fields induce long-term potentiation in rat motor cortex in vitro*, Neuroscience 2009 Chicago, USA, October 2009.
11. Davide Reato, Marom Bikson, Lucas C. Parra. *Low amplitude electrical stimulation modulates induced gamma activity in vitro* (oral presentation), 3rd Tinnitus Research Initiative Meeting 2009, Stresa, Italy, June 2009.
12. Davide Reato, Lucas C. Parra, Marom Bikson. *Low-amplitude electric fields modulate the dynamics of a neuronal network oscillating at gamma frequencies* (poster presentation), Fourth International Workshop on Seizure Prediction, Kansas City, USA, June 2009.
13. Davide Reato, Lucas C. Parra, Marom Bikson. *Modulating seizure-permissive states with weak electric fields* (oral presentation, Bikson), Fourth International Workshop on Seizure Prediction, Kansas City, USA, June 2009.
14. Abhishek Datta, Varun Bansal, Jinal Patel, Julian Diaz, Davide Reato, Marom Bikson. *High-Density Transcranial DC Stimulation (HD-tDCS): Targeting Software* (poster presentation, Datta). Design of Medical Devices Conference, Minneapolis, USA, April 2009.
15. Davide Reato, Marom Bikson and Lucas C. Parra. *Modulation of carbachol-evoked gamma activity in vitro with low-amplitude AC electric fields* (poster presentation), Neuroscience 2008 Washington, DC, USA, November 2008.
16. Marom Bikson, Abhishek Datta, Thomas Radman, Davide Reato. *Insights from in vitro studies: Designing targeted stimulation protocols* (oral presentation, Bikson), Third International Conference on Transcranial Magnetic and Direct Current Stimulation, Gottingen, Germany, October 2008.

## Regular Papers in preparation

1. Davide Reato, Abhishek Datta, Marom Bikson, Lisa Marshall, Lucas C. Parra, *Low-amplitude electrical stimulation affects spatial coherence and synaptic downscaling in a computational model of slow waves*.

2. Asif Rahman,  Davide Reato, Thomas Radman, Lucas C. Parra, Marom Bikson, *How dc electric currents affect neuronal excitability is synaptic pathway dependent.*
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## Talks

- *Effect of electric fields on gamma oscillations in brain slices*, Journal Club of the Division of Brain Stimulation and Therapeutic Modulation at the Columbia University Medical Center.
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## Teaching Experiences

- Teaching Assistant for the course of *Biomedical Signal Processing and Signal Modeling*, City College of New York, Fall 2011.
  - Teaching Assistant for the course of *Biostatistics and Research Methods (MATLAB)*, City College of New York, Spring 2010, Fall 2010, Fall 2011.
  - Teaching Assistant for the course of *Image and Signal Processing in Biomedicine*, City College of New York, Fall 2010.
  - Teaching Assistant for the course of *Experimental Methods 1 (Dry Lab)*, Biomedical Engineering, City College of New York, Spring 2009.
  - Teaching Assistant for the course of *Neural Engineering*, Biomedical Engineering, City College of New York, Fall 2009.
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## Reviewer for

- Proceedings of the 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, August 2011, Boston, USA.
  - Proceedings of the 2010 Design of Medical Devices Conference, April 2010, Minneapolis, USA.
  - Proceedings of the 32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, September 2010, Buenos Aires, Argentina.
  - International Journal of Developmental Neuroscience
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## Research Interests

Topics:

- Acute and plastic effects of weak electric fields on neuronal network oscillations.
- Electrical stimulation of the brain for therapeutic purposes.
- Astrocyte-Neuron interaction in epileptic seizures.

Methods:

- Electrophysiology (extracellular and intracellular recordings).
  - Theoretical and Computational Neuroscience.
  - EEG data analysis.
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## Some Grad classes attended

- Biophysics, Cellular Biology and Biochemistry.
  - Neuroscience, Human physiology.
  - Optical microscopy, Electronics (theory and labs).
  - Signal and Image Processing.
  - and a lot of Physics and Math.
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## Other information

- Very good familiarity with Linux.
  - Very good familiarity with Microsoft products (but I hate to use them).
  - Partial familiarity with MacOS.
  - Very good familiarity with MATLAB.
  - Partial familiarity with Python.
  - Oral and written English.
  - Partial knowledge of French.
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## Other Passions

- Basketball and sports in general.
- Workout.
- Good food and good wine.
- Cooking.
- Videogames.
- Open source softwares.