

# Brian Beatty

## Curriculum Vitæ

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Westport, CT  
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✉ Brian.R.Beatty@drexel.edu

### Education

- 2011-Present **M.S. Studies in Materials Science (Dual Degree)**, *Politecnico di Milano*, Milan, Italy.  
Attended for academic year 2011-2012 as part of EAGLES International Exchange Program
- 2007-Present **B.S./M.S. Studies in Materials Science (Major)**, *Drexel University*, Philadelphia, PA.  
Cumulative GPA: 3.56  
Previous Six Quarters GPA: 3.92

### Master's thesis

- Title *Atomic Layer Deposition of Perovskite Oxide Thin Films*
- Supervisors Dr. Jonathan E. Spanier — *Drexel University, Philadelphia, PA, USA*  
Dr. Carlo S. Casari — *Politecnico di Milano, Milano, Italia*
- Description Atomic Layer Deposition (ALD) has been shown to be capable of depositing ultra-thin films (<100 nm) of perovskite oxides. These are technologically valuable due to their wide range of properties, ranging from ferroelectricity and ferromagnetism to superconductivity. With the use of ALD, it becomes possible to deposit thin and conformal coatings of these materials to three-dimensional surfaces with the ability to carefully control thickness with sub-nanometer resolution. Research work focuses on the lead titanate ( $\text{PbTiO}_3$ ) end group of the  $\text{PbTi}_x\text{Zr}_{1-x}\text{O}_3$  system.

### Experience

- Summer 2012 **Thesis Research**, *Universidad Politécnica de Madrid*, Madrid, Spain.  
Three month period to be spent completing remaining experiments and authoring final M.S. thesis document and defense presentation.
- 2009–2011 **Research Experience**, *MesoMaterials Laboratory*, Drexel University.  
Focused research on application of Atomic Layer Deposition to ferroelectric oxide thin films.  
Co-Op Experiences were 6 month periods (Spring/Summer) of full time employment.  
Student Research was performed during periods when simultaneously attending courses.

#### Co-Op Experiences

- 2011
  - Sub-achievement (a)
  - Sub-achievement (b)
  - Sub-achievement (c)
- 2010
  - Sub-achievement (a)
  - Sub-achievement (b)
  - Sub-achievement (c)
- 2009
  - Sub-achievement (a)
  - Sub-achievement (b)
  - Sub-achievement (c)

#### Student Research

- 2011
  - Sub-achievement (a)
  - Sub-achievement (b)
  - Sub-achievement (c)
- 2010
  - Sub-achievement (a)
  - Sub-achievement (b)
  - Sub-achievement (c)
- 2009
  - Sub-achievement (a)
  - Sub-achievement (b)
  - Sub-achievement (c)

Fall, 2011 **Abstract Accepted to MRS.**

On results of oriented lead titanate thin film deposition via ALD onto single crystalline surfaces.

- Summer 2008 **STAR: Summer Research Experience**, *MesoMaterials Laboratory*, Drexel University.  
Ten week period spent learning to organize and develop a personal research project.
- Learned statistics-based design of experiments;
  - Data analysis (using Matlab and Igor software packages);
  - Training and over 150 hours of experience on various characterization tools;

- 2007–2008 **Training in Atomic Layer Deposition**, *MesoMaterials Laboratory*, Drexel University.  
Worked under graduate mentor Rahul Joseph researching application of advanced thin film deposition methods.  
Trained on operation and maintenance of ALD reactor,

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## Publications

April, 2012 **Shape-Controlled Vapor-Transport Growth of Tellurium Nanowires**, *Christopher J. Hawley, Brian R. Beatty, Guannan Chen, and Jonathan E. Spanier*, *Crystal Growth & Design* 2012 12 (6), 2789–2793.

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## Equipment Experience

**Thin Film Deposition** Atomic Layer Deposition (ALD), Chemical Vapor Deposition (CVD), Pulsed Laser Deposition (PLD), Molecular Beam Epitaxy (MBE).

**Film Analysis** X-Ray Diffraction (XRD), X-Ray Reflectivity (XRR), Scanning Electron Microscopy (SEM), Energy-Dispersive X-Ray Spectroscopy (EDXS), X-Ray Fluorescence (XRF), Ellipsometry, Rutherford Backscattering Spectroscopy.

**Chemical & Thermal Analysis** Fourier-Transform Infrared Spectroscopy (FTIR), Differential Scanning Calorimetry (DSC), Thermo-gravimetric Analysis (TGA).

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## Computer skills

Languages MATLAB, Maple, L<sup>A</sup>T<sub>E</sub>X, Igor

Tools Origin, Igor, FilmWizard, Microsoft Office Suite, Adobe Suite

Platforms Mac OS, Windows

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## Spoken Languages

English **Native**

Spanish **Speaking: Moderate**  
**Reading: Elementary**  
**Writing: Elementary**

Italian **Speaking: Elementary**  
**Reading: Elementary**  
**Writing: Elementary**

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## Personal Interests

Electronics Design and synthesis of novel materials for IC applications, particularly those leveraging unique quantum effects

Energy Nanoscale structures for high-efficiency photovoltaic devices.

Culinary Arts Personal hobby.

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**Company Recruitment team**  
Company, Inc.  
123 somestreet  
some city

July 5, 2012

Dear Sir or Madam,

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Sincerely,

**Brian Beatty**

Enclosure: Curriculum Vitæ