

## ***EDUCATION***

### **Drexel University, Philadelphia, PA**

Ph.D. Candidate in Materials Science & Engineering June 2013 – Present  
NSF GRFP Fellow, 2013 – 2016 GPA: 3.83

M.S. in Biomedical Engineering Expected Graduation: June 2016  
M.S. in Materials Science & Engineering Graduated December 2014

B.S. in Materials Science & Engineering Graduated June 2013  
Pennoni Honors College GPA: 3.75, Magna Cum Laude  
*Minors:* Chemistry & Business Administration  
*Areas of Concentration:* Nanotechnology & Biomaterials

## ***RESEARCH EXPERIENCE***

**Biomaterials and Regenerative Medicine Laboratory, Drexel University** 2014 – Present  
School of Biomedical Engineering, Science, and Health Systems  
Advisor: Dr. Kara Spiller

- Development of a novel nanodiamond-based drug delivery system for modulating macrophage behavior 2014 – Present

**A.J. Drexel Nanomaterials Institute, Drexel University** 2008 – Present  
College of Engineering  
Advisor: Dr. Yury Gogotsi

- Nanoporous carbons as medical adsorbents 2013 – Present
  - In collaboration with the University of Brighton (UK)
- Development of a nanodiamond-based drug delivery system for targeting and treating brain tumors 2012 - Present
  - In collaboration with the Shanghai Advanced Research Institute (China)
- Antibiotic-adsorbed nanodiamond as a platform to combat biofilm formation 2009 – Present
  - In collaboration with Thomas Jefferson University (USA)
- De-aggregation of nanodiamond powders using salt-assisted attrition milling 2008 – 2009

## ***TECHNICAL SKILLS***

- **Material characterization:** UV-visible spectrophotometry, Fourier-transform infrared spectroscopy, scanning electron microscopy, gas sorption, dynamic light scattering, zeta potential measurements
- **Biological characterization:** Confocal and fluorescence microscopy, real-time polymerase chain reaction, plate reader, enzyme-linked immunosorbent assay
- **Cell culture and differentiation:** Aseptic technique, primary and immortal macrophage cell lines

## ***SELECTED HONORS AND AWARDS***

- **NSF GRFP Recipient (2013-2016)**
- Global Ambassador for the World Association for Cooperative & Work-Integrated Education Certificate (2015)
- Who's Who Among Students in American Universities & Colleges (2011, 2013)
- ASM International Philadelphia Chapter Scholarship (2011)
- Drexel Alumni Association Legacy Scholarship (2010)
- William F. Mitchell Endowed Scholarship for Students in the Accelerated B.S./Ph.D. Program (2009, 2012)

## ***PUBLICATIONS***

1. Pentecost, A., Lurier, E., Spiller K. Nanoparticulate systems for controlling monocyte/macrophage behavior. In *Microscale Technologies for Cell Engineering*. Springer, 2015.
2. Mochalin, V., Pentecost, A., et al. Adsorption of Drugs on Nanodiamond: Toward Development of a Drug Delivery Platform. *Molecular Pharmaceutics*, 2013. 10(10): p. 3728-3735.
3. Pentecost, A., et al., Deaggregation of Nanodiamond Powders Using Salt- and Sugar-Assisted Milling. *ACS Applied Materials & Interfaces*, 2010. 2(11): p. 3289-3294.

## ***PRESENTATIONS AND POSTERS***

1. Pentecost, A. "International Collaborations and Equity in Science Research to Solve World Problems." *8th Annual Student Conference on Global Challenges: Technology*, 2015. Drexel University. Philadelphia, PA. [Presentation]
2. Pentecost, A., Gogotsi, Y. Spiller, K. "The effect of dexamethasone-loaded nanodiamond particles on macrophage phenotype." *BioNanotechnology Summer Institute at the University of Illinois – Urbana-Champaign*, 2014. Urbana-Champaign, IL. [Poster]
3. Pentecost, A., Mochalin, V., Giammarco, J., Gogotsi, Y. "Drug adsorption onto nanodiamond platforms." *Nanostructured Materials for the Control of Contaminants Detrimental to Health (NOMAD) Kick-off Meeting*, 2014. Brighton, England. [Presentation]
4. Pentecost, A., Dyatkin, B., Gogotsi, Y. "Novel porous carbide-derived carbons as medical adsorbents." *Drexel-CHOP-Hebrew University Symposium*, 2014, Philadelphia, PA. [Poster]
5. Pentecost, A., Mochalin, V., Hickok, N., Forsberg, F., Gogotsi, Y. "Adsorption and desorption of drug-adsorbed nanodiamond delivery systems." *Materials Research Society Spring Meeting*, 2012, San Francisco, CA. [Presentation]
6. Pentecost, A., Gour, S., Mochalin, V., Knoke, I., Gogotsi Y. "Diamond nanoparticles: Protein mimics and drug delivery vehicles." *Materials Research Society Fall Meeting*, 2011, Boston, MA. [Poster]
7. Pentecost, A., Mochalin, V., Knoke, I., Gogotsi Y. "De-aggregation of nanodiamond powders using salt-assisted milling." *Materials Research Society Fall Meeting*, 2009, Boston, MA. [Poster]

## **TEACHING EXPERIENCE**

- Tutor, Tutor.com* 2014 – 2015
- Chemistry
- Teaching Assistant, Drexel University* Fall 2013
- Advanced Materials Laboratory (MATE 280)
- Grader, Drexel University* 2011 – 2013
- Thermodynamics of Materials (MATE 240), Kinetics of Materials (MATE 245), and Defects in Solids (MATE 341)
- Learning Center Tutor, Drexel University* 2009 – 2011
- Chemistry, Algebra, Calculus, and Physics

## **MENTORSHIP EXPERIENCE**

- Graduate student mentor to Nicholas Pescatore, B.S./M.S., Materials Science & Engineering (2014 - Present)
- Research mentor to Ennio Villaflor-Tanakatsubo – M.P.H., Public Health (2013-2014)
- Research mentor to Emem Okoh – B.S., Biomedical Engineering (2012-2014)
- STAR (Students Tackling Advanced Research) mentor to Patrick Anstine - B.S., Materials Science & Engineering (2010)

## **PROFESSIONAL SERVICE AND MEMBERSHIPS**

- Fellowships Ambassador* 2015 - Present
- International Co-op Global Ambassador* 2014 – Present
- Student Global Advisory Board* 2013 – Present
- Founding President (2013 - Present)
- Drexel Graduate Women in Science and Engineering* 2013 – Present
- Secretary (2015 – Present)
- Materials Research Society* 2009 – Present
- Vice President (2013 - Present)
- Alpha Sigma Mu Materials Engineering Honors Society* 2011 – Present
- Tau Beta Pi National Engineering Honors Society* 2010 – Present
- Alumni Advisor (2013 – Present)
  - President (2011-2012)
  - Treasurer (2010-2011)
- Phi Sigma Pi National Co-ed Honors Fraternity* 2009 – Present
- Alumni Advisor (2015 – Present)
  - Non-profit Organization Chair (2012-2013)
  - Scholarship Chair (Winter 2013)

## **LANGUAGES**

- Korean* – Elementary proficiency
- Russian* – Elementary proficiency
- Spanish* – Elementary proficiency