

# Nelson K. Akafuah

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## CERTIFICATES

Lean Systems Certificate, University of Kentucky, 2013

## EDUCATION

B.Sc., Mechanical Engineering, First Class Honors, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, July, 1999

M.S., Mechanical Engineering, University of New Orleans, December, 2003

MBA., Executive, Jack Welch Management Institute, Strayer University, Expected March 2017.

PhD., Mechanical Engineering, University of Kentucky, December, 2009

Postdoc., Mechanical Engineering, University of Kentucky, January 2010 – January 2011

## Professional Positions Held

### **University of Kentucky:**

R&D Program Manager, Institute of Research for Technology Development (IR4TD), August, 2013-present

Assistant Research Professor, Department of Mechanical Engineering, February 2011–present

Post-Doctoral Research Scholar, Department of Mechanical Engineering, January, 2010 – January, 2011

### Other Related Experience

General Electric Power Systems, Schenectady, NY

**Mechanical Engineer, Graduate Co-op**, June, 2002 – May, 2003

## Selected Recent Publications

1. **Akafuah, N.K.**; Poozesh, S.; Salaimah, A.; Patrick, G.; Lawler, K.; Saito, K. (2016) Evolution of the Automotive Body Coating Process—A Review. *Coatings* 6(2), 24.
2. Poozesh, S., **Akafuah, N. K.**, & Saito, K. (2016). New criteria for filament breakup in droplet-on-demand inkjet printing using the volume of fluid (VOF) method. *Korean Journal of Chemical Engineering*, 33(3), 775-781.
3. Poozesh, S., **Akafuah, N. K.**, Graña-Otero, J., and Saito, K. (2016). Comprehensive Examination of a New Mechanism to Produce Small Droplets in Droplet-On-Demand Inkjet Technology. *Applied Physics A*. 122 (2), 1-12.
4. Poozesh, S., **Akafuah, N. K.**, and Saito, K. (2016). NO formation analysis of turbulent non-premixed coaxial methane/air diffusion flame. *International Journal of Environmental Science and Technology* 13 (2), 513-518.
5. Finney, M. A., Cohen, J. D., Forthofer, J. M., McAllister, S. S., Gollner, M. J., Gorham, D. J., Saito, K., **Akafuah, N. K.**, Adam, B. A., English, J. D. (2015). The role of buoyant flame dynamics in wildfire spread. *Proceedings of the National Academy of Sciences of the United States of America*, 112 (32), 9833–9838
6. Poozesh, S., **Akafuah, N. K.**, and Saito, K. (2015). Numerical Simulation of a Coating Sprayer Capable of Producing Controllable Paint Droplets. SAE Technical Paper 2015-01-0737, 2015, doi:10.4271/2015-01-0737
7. Yang, L, **Akafuah, N. K.**, Li, T., Nienberg, B., Iler, G., Saito, K. (2015). Performance Evaluation of an Internal Heat Exchanger Used in the Automobile Air Conditioning Systems. *Research Journal of Modeling and Simulation* 2(1), 25-33

8. Adam, B. A., **Akafuah, N. K.**, Finney, M. A., Forthofer, and Saito, K. A Study of Flame Spread in Engineered Cardboard Fuel beds, Part II: Scaling Law Approach, to appear in *Progress in Scale Modeling*, Volume 2, 2015, Springer.
9. Finney, M. A., Forthofer, J., Grenfell, I. C., Adam, B. A., **Akafuah, N. K.**, and Saito, K. A Study of Flame Spread in Engineered Cardboard Fuel beds, Part I: Correlations and Observations, to appear in *Progress in Scale Modeling*, Volume 2, 2015, Springer.
10. Lei, J., Liu, N., Zhang, L., Deng, Z., **Akafuah, N. K.**, Li, T., Saito, K., Satoh, K., (2012). Burning rates of liquid fuels in fire whirls. *Combustion and Flame*, 159 (6), 2104-2114

### **Patents**

1. Alloo, R., Saito, K., Gharaibeh, B., Chuah, K., **Akafuah, N. K.**, Salaimah, A., SYSTEMS AND METHODS FOR DETECTING DEFECTS IN COATINGS UTILIZING COLOR-BASED THERMAL MISMATCH, US Patent 8,204,294

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## **PROFESSIONAL AFFILIATIONS AND SERVICES**

### **Affiliations**

- Society of Automotive Engineers (SAE)
- American Society of Mechanical Engineers (ASME)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- American Society of Nondestructive Testing (ASNT)
- National Society of Black Engineers (NSBE)

### **Paper Reviewer**

- Infrared Physics and Technology
- Atomization and sprays
- SAE International: Advances in Alternative Energy and Fuels for the Transportation Sector
- Energies

### **Graduate Student Advisees**

PhD Student (1), Mark Doerre

### **Collaborators:**

- Mark Finney, Jason Forthofer, and Bret Butler (USDA Forest Service, Missoula, MT)
- Michael J. Gollner (University of Maryland, College Park, MA),
- Reza Rock (PPG Industries, Spray Application Research, Allison Park, PA)
- Gabriela Patrick, Kevin Lawler (Production Engineering – Paint Application Research Laboratory, Toyota Motor Engineering & Manufacturing North America, Inc., Enlarger KY)

**Former Students:** Sadegh Poozesh (UK, Pharmacy), Mohamed Kenawey (Cummins, Columbus IN), William Linnig (Belcan, Lexington, KY), Brittany Adam (Big Ass Fans), Justin English (Lockheed Martin), Anthony Adornato, (Ford), Jeremy Fugate (Central Motor Wheel of America), Soham Basu (Terex Corporation), Peiding Wang (Montaplast of North America), Huangxing Chen (Magneti Marelli), Nikolay Gustenyov