

## **OLUSEGUN JOHNSON ILEGBUSI**

### **1. Education**

- Ph.D. Mechanical Engineering, Imperial College, University of London, 1983.
- DIC. Mechanical Engineering, Imperial College, University of London, 1983.
- B.S., Mechanical Engineering, University of Ibadan, Nigeria, 1979.

### **2. UCF Academic Experience**

University of Central Florida, Professor, August 2002 – Present, Full time

### **3. Other Academic Experience**

- Northeastern University, Boston, Professor, 07/99 – 07/02, Full time.
- Northeastern University, Boston, Associate Professor, 08/92-06/99, Full time.
- Massachusetts Institute of Technology (MIT), Visiting Professor, 08/99-06/00, Full time.
- MIT, Principal Research Associate (Materials Science and Engineering), 09/90-06/92, Full.
- MIT, Research Associate (Materials Science and Engineering), 01/86-08/90, Full time.
- Imperial College of Science, London, Visiting Lecturer, 06/85-09/85, Full time.
- University of Ibadan, Nigeria, Lecturer 1 (US Equivalent: Assistant Prof.), 09/84-08/85, Full.
- Imperial College, London, Post-Doctoral Associate, 07/83-06/84, Full time.

### **4. Non-academic Experience**

- JS Associates Inc., Research Director, 05/87 – 06/90, Part time.
- Nigeria Army Engineers Corps, Trainee Engineer, 07/79 – 06/80, Full time.

### **5. Certifications or Professional Registrations: None**

### **6. Current Membership in Professional Organizations:**

American Society of Mechanical Engineers

### **7. Honors and Awards (for the past 5 years):**

- 2009-2010, Advisory Board Member, 5<sup>th</sup> ISEM'10 (International Symposium on Advanced Science and Technology in Experimental Mechanics), Nov. 4-7, 2010, Kyoto, Japan.
- 2010, International Advisory Committee Member, Fluid-Structure 2011, Wessex Institute of Technology, England.
- Invited book chapter “Gas Semiconducting Sensors Based on Mixed Metaloxide Nanocomposites,” for INTECH Open Access Publishing Co, 2011.
- Invited paper contribution to the Special Issue on Nanocomposites, Journal of Nanotechnology, 2011.
- Consultant, Committee of Vice Chancellors of Nigerian Universities, 2012-2013.
- Consultant, Senate Committee on Science and Technology, Federal Government of Nigeria, 08/2012 – 08/2013.
- Invited Speaker at the Natotechnology for Defense conference in Arizona, USA, 2013.

### **8. Service Activities (for the past 5 years):**

- Member: Department Tenure and Promotion Committee (2008-Present); Graduate Committee (2009-2011); Faculty Search Committee (2009-2010); ABET Thermo Fluids Committee (2013-); Lab Committee (2012-)
- Faculty Advisor, Chess Club, Department of Mechanical Engineering (2009-2011).
- Member: Heat Transfer Committee/ASME, (2008-2010)
- Proposal Reviewer and Panelist, NSF (2008 – 2012)
- Reviewer for the following Journals: Sensors and Actuators B (2010-2013); Applied Mathematical Modeling (2009-2011), Journal of Materials Research (2012).

#### 9. Significant Publications (for the past 5 years):

- Iguchi M., and O.J. Ilegbusi, *Modeling Multiphase Materials Processes: Gas –Liquid Systems*, Springer: New York (2010) p.413.
- Li Z. and O. J.Ilegbusi, “Flame Propagation in Combustion Synthesis of Ni - Ti Structural Bioimplant Material,” *Advances in Natural Science*, Vol. 3. No.2, (2010), pp. 62-70.
- Ballas M., Z. Li and O. Ilegbusi, “Modeling Reaction Front Propagation and Porosity in Pressure-Assisted Combustion Synthesis of Porous NiTi Intermetallics,” *J. Materials Engineering and Performance*, (2011), DOI: 10.1007/s11665-011-9929-9. Online Publication 12 April 2011.
- Li, Z. and Ilegbusi, O.J., “Experimental Study of Thermal and Flame Front Behavior in Combustion Synthesis of Porous Ni-Ti Intermetallic Material,” *J. Materials Engineering and Performance*, 21:7 (2012) pp. 1193-1198. DOI: 10.1007/s11665-011-0012-3.
- Ilegbusi, O.J. and E.Velaski-Tuema, “A fluid-structure interaction index of coronary plaque rupture,” F. Bello and S. Cotin (Eds.): Springer-Verlag, ISBMS 2010, LNCS, pp. 98-107.
- Ilegbusi O.J., Song H., and Chakrabarti R., “Biocompatibility and conductometric property of sol-gel derived ZnO/PVP nanocomposite biosensor film,” *J. Bionic Engineering* 7 Suppl., (2010) pp.S20-S35.
- Ilegbusi, O.J. and Velaski-Tuema E., “A fluid-structure interaction index of coronary plaque rupture,” F. Bello and S. Cotin (Eds.): Springer-Verlag, ISBMS (2010), LNCS, pp. 98-107.
- SanthanamA., MinY., PappN., BhargavaA., ErhartK., LongX., NeelakkantanH., MitchellR., RuddyB.H., DivoE., KassabA., IlegbusiO.J., RollandJ., MeeksS., KupelianP., “Visualization of 3D volumetric lung dynamics for real-time lung radiotherapy,” *Studies in Health Technology and Informatics* 163(2011) pp.567-573.
- Oke T, Kumagai T., Ilegbusi O.J., and Iguchi M., “Gas-Liquid two-phase flow through an orifice in millimeter-scale rectangular channel.” *Journal of JSEM*, Vol. 11- Special Issue (2011), SS53-SS58.
- Trakhtenberg L.I., Gerasimov G.N., Gromov V.F., Kozhushner M.A., Belysheva T.V., Ilegbusi O.J., *Experimental Investigation and Modeling of Gas Sensing Effect in Mixed Metal-Oxide Nanocomposites*, Book Chapter in Chemical Sensors: Simulation and Modeling, Momentum Press, New York, (2012) pp. 261-296.
- Trakhtenberg, L.I., Gerasimov, G.N., Gromov, V.F., Belysheva, T.V., and Ilegbusi, O.J., “Effect of Composition on Sensing Properties of SnO<sub>2</sub> + In<sub>2</sub>O<sub>3</sub> Mixed Nanostructured Films,” *Sensors and Actuators B*, B169 (2012) pp. 32-38.
- Ilegbusi, O.J. and L. Trahtenberg, “Synthesis and Conductometric Property of Sol-Gel Derived ZnO/PVP Nano Hybrid Films, *J. Materials Engineering and Performance*, Online publication (2012). DOI: 10.1007/s11665-012-0336-7.

- Trakhtenberg, L.I., Gerasimov, G.N., Gromov, V.F., Belysheva, T.V., and Ilegbusi, O.J., “Gas Semiconducting Sensors Based on Metal Oxide Nanocomposites,” *Journal of Materials Science Research*, 1:2 (2012) pp. 56-68.
- Velaski-Tuema E. and O.J. Ilegbusi, “Unsteady Integro-differential Equation of Fluid-Structure Interaction in Constricted Collapsible Tube Model of Diseased Human Coronary Artery,” *International Journal of Differential Equations*, Vol. 2012: Article 37650, (2012) pp. 1-21, doi:10.1155/2012/376350.
- Ilegbusi O., Z. Li, Y. Min, S. Meeks, P. Kupelian and A.P. Santhanam, “Computational Fluid Dynamics Modeling of Airflow inside Lungs Using Heterogenous Anisotropic Lung Tissue Elastic Properties” *Studies in Health Technol Info*, 173 (2012) pp. 205-211.
- Khatami S.N., O.J. Ilegbusi and L. Trakhtenberg, “Modeling of aerosol spray characteristics for synthesis of sensor thin film from solution,” *Applied Mathematical Modeling*, (2013), doi: 10. 1016/j.apm.2013.01.009
- Ilegbusi O.J., Z. Li, B. Seyfi, Y. Min, S. Meeks, P. Kupelian, and A.P. Santhanam, “Modeling Airflow Using Subject Specific 4DCT Based Deformable Volumetric Lung Models,” *International Journal of Biomedical Imaging*, Vol. 2012, 2012:350853. <http://dx.doi.org/10.1155/2012/350853>
- Trakhtenberg, L.I., Gerasimov, G.N., Gromov, V.F., Belysheva, T.V., and Ilegbusi, O.J., “Conductivity and Sensing Properties of In<sub>2</sub>O<sub>3</sub>+ ZnO Mixed Nanostructured Films: Effect of Composition and Temperature,” *Sensors and Actuators B* 187 (2013) 514-521doi: 10.1016/j.snb.2013.03.017, (2013).
- Ilegbusi, O.J., Seyfi B., and R. Salvin, (2013) "Patient-specific model of lung deformation using spatially dependent constitutive parameters," *Mathematical and Computer Modelling of Dynamical Systems*, pp. 1-11, 2013.
- Iguchi, M. and Ilegbusi, O.J., *Basic Transport Phenomena in Materials Processing*, Springer Tokyo, 2014.

**10. Professional Development Activities (for the past 5 years):**

**11. Other Information:**