

## CEE Diversity, Equity and Inclusions Research Talk and Lunch Series

CEE introduces monthly seminar series to foster diversity, equity and inclusion. Speakers from diverse backgrounds who are highly successful in their careers will share their journey to achieve success and their research. The goal of this initiative is to start a dialogue around the topics of diversity, equity and inclusion, address the relative lack of representation of certain groups and present examples of those who were able to overcome unique challenges. Speakers will present a two-part seminar: one part of the seminar will be an overview of their research and the other will focus on how they navigated through various challenges associated with diversity, equity and inclusion in their careers.

### Next (Inaugural Black History) Event:

Time and Location: Feb 26 in room 1-131 between 12:00 pm – 1:00 pm: Lunch provided

Speaker Info:

**Alade Ahmed Tiamiyu, MSc, PhD, EIT**  
Postdoctoral Research Fellow, DMSE, MIT

**Title: From Nigeria to America: the untold story of a Nigerian-Canadian**

#### *Abstract*

From a humble background, the journey from the city of Lagos, Nigeria to Canada, and then, USA, will be discussed. I will highlight the unique challenges faced in the process leading to my current position and how I overcome them. The talk will be capped up by addressing Diversity and Inclusion from a small-scale family-model point of view.

**Title: From subsonic to supersonic: a site-specific study of single microparticle impact bonding**

#### *Abstract*

Cold spray is a fast-growing solid-state coating process with a high deposition rate that has been attracting industrial interest in the last decade. It involves the acceleration of solid powder particles at supersonic speed to impact and adhere to a substrate or previously deposited particles, forming coats. This unique technique is used to mitigate corrosion by depositing more noble materials of superior corrosion resistance on metallic substrates. It can also be used for *in situ* repairs of cracks, restoration/remanufacturing of unserviceable engineering/aeronautical components or corroded parts that are in service; making them reusable and in turn, save the cost of buying new products. For bonding to occur during cold spray, the impact velocity of the particle, must reach and exceed a critical velocity, and an intimate metal-metal clean contact must be achieved between the metal lattices. To expand the wide-spread application of cold spray to unconventional areas, the underlying mechanism of metal-metal bonding must be unearthed. Till date, the mechanism of bonding is under debate due to the difficulty in experimental observation of microparticle impacts that only span nanoseconds. In this talk, the major advances made in unravelling events that lead to bonding by studying single particle impacts from subsonic to supersonic regimes will be highlighted. Microstructural evolution at the particle-substrate interface will also be discussed.