The April BSAC Research Seminar will feature David Gardner of BSAC Co-Director Prof. Roya Maboudian’s group.

Accurate detection of hazardous chemicals is critical to public and environmental health as well as maintaining safe and efficient operations for many industrial processes. This presentation will discuss recent advances in nanomaterials for low-power gas sensing for health, environmental, and process monitoring using standard microfabrication techniques. In the first part, we will show how the integration of aerogels based on two-dimensional materials with a microheater-based platform enables fast, sensitive and selective detection of environmental pollutants as well as flammable gasses below their hazardous levels. In the second part, we will show our recent efforts to integrate metal-organic frameworks (MOF), a highly tunable class of sensing material, with the chemical sensitive FET (CS-FET) platform for the development of highly selective sensors for toxic gasses.

David Gardner joined BSAC and Prof. Maboudian’s group as a PhD student in January 2017. His research is focused on metal-organic frameworks for sensing applications. David has received several teaching awards, including the Teaching Effectiveness Award for showing how thermodynamics can be used to make business decisions.