

**Mustafa Kemal BAYAZIT**

**University College London**

**London Centre for Nanotechnology**

**Chemistry of Nanomaterials**

Nanomaterials (NMs), each bearing the possibility of different reactivity, exhibit distinct mechanical, electrical, optical, catalytic and magnetic properties due to their small size (the length scale of approximately 1-100 nm) and continue to be highly appealing in a variety of research disciplines. Thus continuous, sustainable and reproducible manufacturing of the NMs while maintaining a fine control over particle size and its distribution, shape and morphology, crystallinity and purity have been increasingly important in order to sustain their full potential in advanced applications. I will present the state of recent discoveries about a Microwave-Flow System to produce metal and metal oxide nanoparticles continuously.[[1](#_ENREF_1)] I will show how such systems can be adapted for large-scale synthesis of 2D materials in solid-state.[[2](#_ENREF_3)] I will discuss the significance of designing novel energy harvesting materials and their hybrids[[3](#_ENREF_4)] as well as the solution processing of the carbon nanomaterials.[[4](#_ENREF_6)] I will conclude with a forecast for the use of Microwave-Flow System in a nanocomposite engineering context and 3D carbon networks in energy and environment.

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[2] M. K. Bayazit, J. Tang, **2016**, GB1601109.

[3] aM. K. Bayazit, S. J. A. Moniz, K. S. Coleman, *Chemical Communications* **2017**, *53*, 7748-7751; bY. Wang, M. K. Bayazit, S. J. A. Moniz, Q. Ruan, C. C. Lau, N. Martsinovich, J. Tang, *Energy & Environmental Science* **2017**, *10*, 1643-1651.

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