

Metal nanoparticles synthesis using atmospheric pressure micro discharge jet

Thursday, 21 May 2015 13:30 (30 minutes)

Metal nanoparticles (NPs) due to their size and shape, have unique attributes that differ from their macro-sized counterparts. These attributes contributed to an ever-growing list of applications, from medicine to electronics. The challenge is not only to create the nanoscale sizes but also to keep the metal NPs dispersed without agglomeration. Conventional methods to synthesize the NPs include the physical (e.g. evaporation-condensation, laser ablation) and chemical (via chemical reducing and capping agents) approaches. An alternative method is to use a specially configured atmospheric pressure micro discharge jet to produce NPs without the addition of reducing and capping agents. In this case, the micro discharge jet is itself the reducing agent, hence, making it environmentally friendly. The synthesis process is quite rapid (within minutes) and no heating is required.

Summary

Primary author: CHIN, O.H. (Plasma Technology Research Centre, Physics Department, University of Malaya 50603 Kuala Lumpur, Malaysia)

Co-authors: ONG, Boon Hoong (Nanotechnology and Catalyst Research Centre (NANOCAT), University of Malaya 50603 Kuala Lumpur, Malaysia); HUANG, Nay Ming (Low-Dimensional Materials Research Centre, Physics Department, University of Malaya 50603 Kuala Lumpur, Malaysia); THONG, Y.L. (Plasma Technology Research Centre, Physics Department, University of Malaya 50603 Kuala Lumpur, Malaysia)

Presenter: CHIN, O.H. (Plasma Technology Research Centre, Physics Department, University of Malaya 50603 Kuala Lumpur, Malaysia)

Session Classification: Ion and Plasma Physics

Track Classification: Ion and Plasma Physics