

Supporting Information for

Morphology and Structure of Aerosol Carbon Encapsulated Metal Nanoparticles from Various Ambient Metal-Carbon Spark Discharges

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- Raman spectra of spark produced particles

: Raman spectroscopy was used to examine the overall graphitization degree of particles produced.

All Raman spectra of spark produced particles (Figure) showed two main peaks centered at ~ 1350 (D band) and $\sim 1590 \text{ cm}^{-1}$ (G band). The G peak was due to bond stretching of all pairs of sp^2 carbon atoms in both the rings and chains, while the D peak was due to the breathing modes of the rings and other complex origins. The band area intensity ratios (I_G/I_D) between the G and D bands ranged from 1.18 to 0.80 among the samples, which are originated from individual spectra, indicating the presence of dissimilar graphitization of carbon in each configuration.

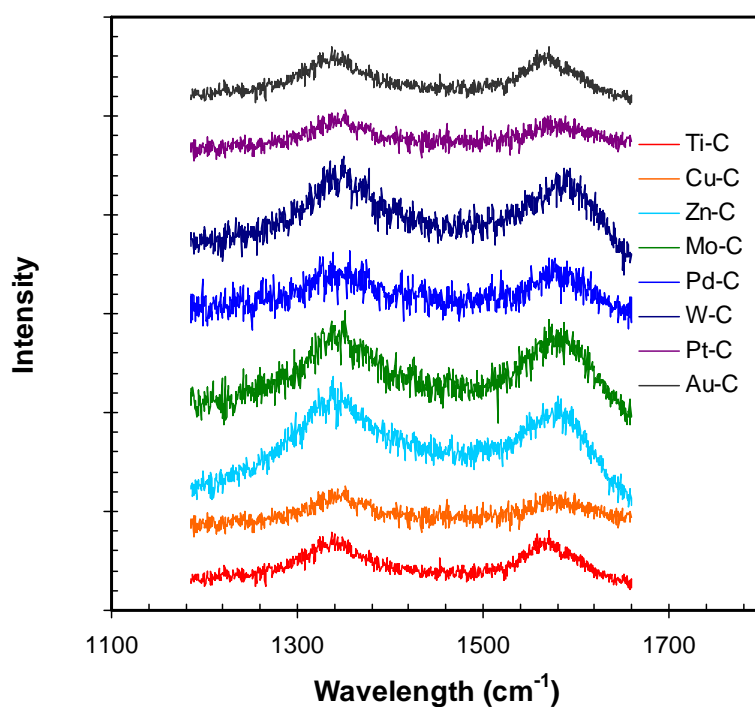


Figure. Raman spectra of spark produced particles.