

A novel Electro -Spin Electrical Wire Explosion Instrument Fabrication & its Semiconductor Electronic and Optoelectronics Applications

Electro - Spin Electrical Wire Explosion Instrument is a novel method which has vast industrial application due to its simplicity. One can recreate interest on all of closed electrical wire explosion based spin coating material science and engineering. Figure (1) shown our novel Electro - Spin Electrical Wire Explosion Instrument. In this thin film fabrication method one can get very high quality material fine particle discrete and concentrated plasmonic layer with controlled structural, surface, optic and optoelectronic property. The Plasmonic particle fabrication through short duration convenient method is a more advanced science and engineering electronic and optoelectronics products art.

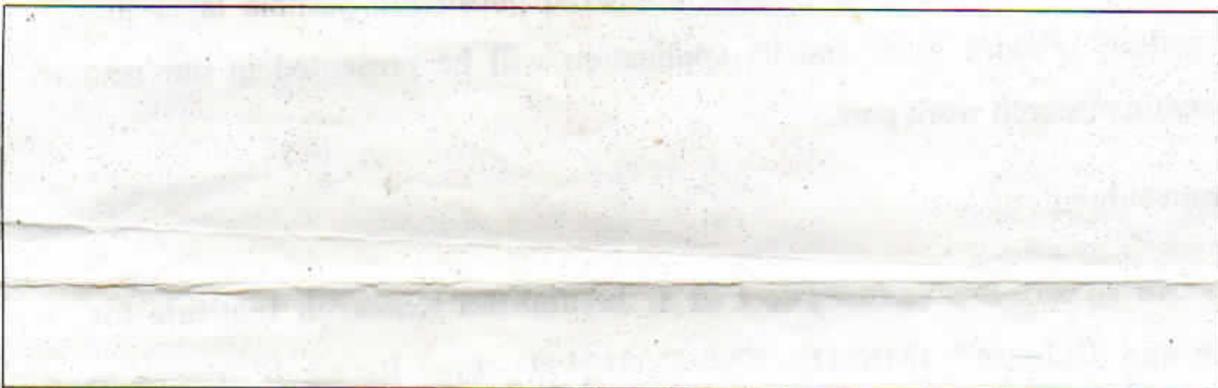


Figure (1) Our novel Electro - Spin Electrical Wire Explosion Instrument

The structural property of our fabricated samples will be characterized using X-ray diffraction analysis. We have planned to test samples with various wire explosion shots and various duration. Further various metal wire and metal alloy wires also will be taken in to account for this present novel research. The surface morphology of our fabricated sample will be investigated through Scanning electron microscopy (SEM) analysis. Optic property of our novel electro-spin deposited semiconductor thin film sample will be investigated with

help of UV-Vis spectroscopy in the visible wavelength range of 300-1100 nm. Optic absorption, transmittance, reflectance and energy band gap of our semiconductor thin film samples will be investigated through this UV-Vis spectroscopy.

Application of various potential and current on spin coating lead to a strong seed bottom particle plasmonic layer. This natural seed layer can act as a preliminary address for getting more improved plasmonic particle layer thin film activity. Future work and its application will be presented in our next systematic research work part.

Acknowledgement

Our sincere thanks to **"The CM J. Jayalalitha Research Institute for Space and Defense"**, (MSME: TN06D0010191), Free Research Service to Common Peoples, Government of India and **"Research Product Invention & Solution Service Centre (MSME-TN21D0003788)"** for providing their knowledge support and instrumentation support throughout this novel research work completion. Further we got forwarded recommendation suggestion from Government of Tamilnadu.