



## NSF Award Abstract - #0216106

### SBIR Phase II: Novel Use of Microspheres In Plasma Display Device

**NSF Org DMI**

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**Award Number** 0216106

**Award Instrument** Standard Grant

**Program Manager** T. James Rudd

DMI Division of Design, Manufacture & Industrial Innov  
ENG Directorate for Engineering

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**NSF Program(s)** SMALL BUSINESS PHASE II

**Field Application(s)** 0308000 Industrial Technology

**Program Reference Code** MANU,9148,9102

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**Program Element Code(s)** 5373

### Abstract

This Small Business Innovation Research Phase II project continue the development and commercialization of novel plasma display panels which utilize gas filled microspheres (Plasma-spheres) as the pixel elements. The project has six objectives: (a) improve

process control of the Plasma-sphere production system, (b) produce Plasma-spheres with optimum properties and characteristics, (d) develop reliable microsphere-electrode configurations, (e) develop a semi-automated process for fabricating Plasma-sphere panels, (f) construct and evaluate prototype plasma-sphere panels, and (g) determine techniques for a fully automated production process. The Plasma-spheres will be produced with a prototype production system built in Phase I. The Plasma-sphere panels will be characterized for operating voltages, current and brightness. As part of the prototype panel construction a reliable method of applying the Plasma-spheres to substrates will be developed. The use of Plasma-spheres will dramatically increase manufacturing throughput, reduce materials cost by half, and eliminate many process steps and expensive specialized machinery which are part of the current plasma panel technology. These cost reductions along with new applications which will result from the availability of an open flexible substrate (e.g., large conformal and panoramic displays), will provide Plasma-sphere panels with a significant competitive edge

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