

## MRS Meeting Scene

Day 4 — Wednesday, November 30

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### Symposium DD

In an invited talk in Symposium DD, George Gruner (Univ. California at Los Angeles) predicted that 2D networks of carbon nanotubes will very soon outperform indium tin oxide (ITO) and conducting polymers for transparent and flexible electronics applications. Gruner and his colleagues have developed a low-cost, room temperature process for fabricating films of carbon nanotubes on appropriate substrates. By reducing the bundle size and purifying the tubes, good conducting paths can be established through these nanotube networks, while still retaining transparency. The sheet resistance for films with 80% transparency is as low as 100-150 Ohms, comparable or better than certain ITO films on plastic and conducting polymer films, with a further increase of performance expected upon network optimization. An additional advantage for carbon nanotube networks is that the optical transmittance does not show significant wavelength dependence in the visible range, thus providing neutral colored films, rather than the bluish and yellow coloring seen for polymer and ITO films, respectively. Gruner and his colleagues are exploring applications of these networks in smart windows, conducting fabrics, OLEDs, solar cells, and also as artificial eyes for the direct conversion of light to electronic signals. “While certain applications of nanotube networks are here and now, the future for nanotubes is bright and transparent”, said Gruner.

