

Diabologic: That's Entertainment

by Frank Dolinar

A news blurb caught my attention this week (May 9, 2005). It read:

"Motorola Labs today unveiled a working 5-inch color video display prototype based on proprietary Carbon Nanotube (CNT) technology -- a breakthrough technique that could create large, flat panel displays with superior quality, longer lifetimes, and lower costs than current offerings. Optimized for a large screen High Definition Television (HDTV) that is less than 1-inch thick, this first-of-its-kind Nano-Emissive Display (NED) 5-inch prototype harnesses the power of CNTs to fundamentally change the design and fabrication of flat panel displays."

This may be the first "killer app" (i.e. "application") for nanotechnology. Don't know what a "killer app" is? Let me explain.

About 25 years ago, in 1981 or thereabouts, a software developer named Dan Bricklin had developed a product called VisiCalc, an electronic spreadsheet and the progenitor to Microsoft Excel and all other spreadsheet applications in existence today. Prior to that time, the microcomputer was an interesting toy, whose fascination was limited to electronics experimenters and hobbyists. However, VisiCalc caught the attention of corporate accountants, which immediately and fundamentally changed the role of the microcomputer from interesting toy to indispensable business tool.

VisiCalc provided the microcomputer with its first "killer application" and the rest is history.

I'm fascinated with this development from Motorola for two reasons. First, as you already know, I'm seriously interested in nanotechnology. Second, I'm also serious about high-quality audio (which for the moment I have covered) and video (but not at today's prices).

What (I hear you ask) does a video display have to do with nanotechnology? It's the carbon nanotubes, also known as "fullerenes". Prior to their discovery by Dr. Richard Smalley of Rice University, no one had ever seen or imagined a spherical molecule made of 60 carbon atoms. These molecules look exactly like soccer balls or geodesic domes, albeit orders of magnitude smaller. The geodesic dome is a structure invented by Richard Buckminster "Bucky" Fuller. Dr. Smalley recognized the similarity of the molecule's structure to the dome and paid homage to Bucky Fuller by naming them "fullerenes".

Fullerene chemistry, physics, electronics, and materials science is a darling of nanotech researchers, and deservedly so. Since their discovery by Dr. Smalley (for which he won a Nobel Prize), fullerenes have revealed new properties and possibilities nearly every month. This week's announcement from Motorola Labs is merely the latest in a decade long stream of announcements, but I think this one is the killer app that will rapidly and dramatically affect the acceptance of nanotech in our lives.

Why do I think so? Motorola is already discussing licensing this technology to television and computer display manufacturers (...and I can think of a number of other uses). The expectation is that a lightweight, 1-inch thick, 40-inch diagonal, HDTV will be available in the near future -- my guess for the timeframe is by Christmas of 2006 -- and at a fire sale price of about \$400.

It's the kind of breakthrough (in both nanotech and HDTV) that I've been waiting for.

Where can I get in line?