Nantero Announces Routine Use of Nanotubes in Production CMOS Fabs

November 2 2006

Nantero, Inc., a nanotechnology company using carbon nanotubes for the development of next-generation semiconductor devices, has resolved all of the major obstacles that had been preventing carbon nanotubes from being used in mass production in semiconductor fabs. Nanotubes are widely acknowledged to hold great promise for the future of semiconductors, but most experts had predicted it would take a decade or two before they would become a viable material.

This was due to several historic obstacles that prevented their use, including a previous inability to position them reliably across entire silicon wafers and contamination previously mixed with the nanotubes that made the nanotube material incompatible with semiconductor fabs.

Nantero has developed a method for positioning carbon nanotubes reliably on a large scale by treating them as a fabric which can be deposited using methods such as spincoating, and then patterned using lithography and etching, all common CMOS processes present in every semiconductor fab. Nantero has been issued patents on all the steps in the process, as well as on the article of the carbon nanotube fabric itself, US Patent No.

6,706,402, “Nanotube Films and Articles,” by the US Patent and Trademark Office. The patent relates to the article of a carbon nanotube film comprised of a conductive fabric of carbon nanotubes deposited on a surface.

Nantero has also developed a method for purifying carbon nanotubes to the standards required for use in a production semiconductor fab, which means consistently containing less than 25 parts per billion of any metal contamination.

With these innovations, Nantero has become the first company in the world to introduce and use carbon nanotubes in mass production semiconductor fabs.

.

Nantero is developing NRAM™ –a high-density nonvolatile random access memory device. NRAM™ is a 'universal memory' that is slated to replace all existing forms of storage, such as DRAM, SRAM and flash memory. The revenue potential for NRAMTM, adds up to over $100B when replacing the memory in applications such as cell phones, MP3 players, digital cameras, and PDAs, as well as in networking applications. NRAMTM will also enable the instant-on feature in computers which will eliminate the initialization period when computers are turned on. NRAM™ can be manufactured both as standalone devices and as embedded memory in application- specific devices such as ASIC and microcontrollers.

Greg Schmergel, CEO and Co-Founder of Nantero noted "Nantero has developed the full suite of solutions required to use carbon nanotubes in a mass production environment today, and this is being proven every day not in theory, but in practice. Our CMOS-grade carbon nanotube formulation and processes for handling them reliably PDF created with pdfFactory Pro trial version www.pdffactory.com across 200mm silicon wafers is being practiced today and enables the development of our NRAM as well as carbon nanotube-based products from many other companies as well."

Source: Nantero