

Press Release

September 9, 2008

Advanced Diamond Technologies' All-Diamond AFM Probes Now Available

Romeoville, IL—September 9, 2008—Advanced Diamond Technologies (ADT) announces the immediate availability of NaDiaProbes™—the world's first all-diamond atomic force microscopy (AFM) probes. Harnessing the unsurpassed properties of diamond, NaDiaProbes provide outstanding sharpness, dimensional stability, and wear resistance in AFM probes that have 30 times the price performance of industry standard silicon nitride (SiN) probes. NaDiaProbes are suitable for general imaging applications as well as for metrology, inspection, and manufacturing at the nanoscale.

NaDiaProbes are not diamond-coated probes or pieces of diamond mounted on cantilevers; the entire cantilever and tip assembly consists of UNCD®, a thin-film form of nanocrystalline diamond. Starting with UNCD Wafers™, Frost & Sullivan's 2006 Product Innovation of the Year for diamond films, which are known for their excellent uniformity and low film stress, ADT applies standard micromachining techniques to make diamond devices that leverage semiconductor economics for affordability and consistency.

Compared with standard silicon or SiN probes, NaDiaProbes last over 100 times longer when imaging hard surfaces while maintaining tip radii better than 25 nm. NaDiaProbes also exhibit the low adhesion and low surface energy properties of diamond which enhance performance when imaging soft, sticky materials.

"Remember phonograph needles? They had to be replaced every second or third time you listened to a record—very similar to today's AFM probes. Then came diamond styli which ushered in the era of the LP (long playing record) which transformed the music industry. What diamond did for records it will do to micromachines such as sensors, resonators, switches, and AFM probes," said ADT's president Neil Kane.

"Thin, smooth, diamond films on wafers enable groundbreaking products—in this case, the world's first diamond microdevice," said Dr. John Carlisle, ADT's chief technical officer. "NaDiaProbes showcase our ability to make diamond products using semiconductor manufacturing techniques, and they pave the way for advanced MEMS (micro-electrical-mechanical systems) devices. When it comes to an engineering material, it doesn't get any better than diamond."

NaDiaProbes for contact-mode imaging in air/vacuum and for TappingMode™ imaging are available at www.thindiamond.com. ADT welcomes inquiries from interested distributors, AFM tool vendors, and product developers looking to integrate UNCD devices into their products.

ADT was founded by Kane, Carlisle, and Dr. Orlando Auciello, senior scientist at Argonne National Laboratory (Argonne), to fulfill the vision of diamond becoming an engineering material platform just as silicon and gallium arsenide are today. "Shipping our first all-diamond device is a watershed event, and this is only the tip of the iceberg of what's possible," said Kane. "Future UNCD products will leverage more of the properties of diamond such as its acoustic velocity, thermal, dielectric, and electrochemical properties to make high performance devices such as real-time, portable biosensors that protect our soldiers from weaponized pathogens, high-frequency chips to enable secure wireless communication for cell phone and military applications, and electrodes for water purification," said Carlisle.

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About Advanced Diamond Technologies

ADT is the world leader in developing and applying diamond films for industrial, electronic, and medical applications. Formed to commercialize the ultrananocrystalline diamond technology developed at Argonne, ADT is the exclusive licensee to its portfolio of diamond patents. ADT is a World Economic Forum 2007 Technology Pioneer as well as being a runner-up for the *Wall Street Journal's* 2006 Technology Innovation Award.

For more information about ADT, visit www.thindiamond.com.

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