



Press Background Information

Carbon Design Innovations (C|D|I) was founded by Ramsey M. Stevens in February 2008 to commercialize a process for the deterministic nanofabrication of carbon nanotubes (CNTs). Stevens, recognized as a world leader in the development and use of CNTs, developed the intellectual property (IP) that is the basis for C|D|I product development. The process was initially developed while he was working at the Center for Nanotechnology at NASA, Ames Research Center and subsequently perfected at Modus, Inc.

The result is the commercial availability of CNT probes for Atomic Force Microscopy (AFM), with predictable characteristics, in volume. They give users the capability to make the next major advancements in AFM research and deliver the full promise of CNT probes.

Quick Facts

Founded in February 2008

Angel funded in May 2009

\$400K in venture funding

Products

CNT AFM Probes

The next big leap for AFM tools is acknowledged to hinge on advancements in probe technology. CNT AFM Probes from C|D|I are engineered from the micro to the nanoscale with precise dimensions, angles and material properties offering longer lifetime, higher resolution and greater flexibility than existing Si, SiN or CNT AFM probe products.

The CCHAR high-aspect ratio CNT AFM probes are designed for critical dimension measurements and imaging high-Z structures in materials science, metrology and life science applications. The standard CNT probe length is approximately 1 μ m overall with < 500nm of exposed CNT tip. These two dimensions can also be custom engineered to user specifications.

The CCHR high-resolution CNT AFM probes are designed for detailed imaging in metrology and materials science applications. The standard CNT probe length is 500 nm, with the exposed CNT tip <200 nm.

Increased Productivity and Reduced Cost-of-Ownership

CNT AFM Probes from C|D|I are straight, strong and durable. These characteristics mean that users can use a single probe to scan the same sample, or scan side-by-side samples, and get consistent results. In addition, they have less down time due to the need to change probes and the longer lifetimes reduce the overall cost-of-ownership.

Why CNT's for Atomic Force Microscopy?

Carbon nanotubes (CNTs) provide the ideal structure for atomic force microscopy (AFM) imaging and critical dimension characterization. A true carbon nanotube provides a robust probe capable of long-lifetime high-resolution imaging for both materials science and life sciences applications. When compared to a carbon fiber, Si, or SiN probe, a true carbon nanotube is extremely tough and wear resistant -- easily offering 10x the lifetime of the others. Si and SiN are brittle materials and can chip and wear upon approach and continually degrade thereafter while imaging. C|D|I CNT AFM probes do not chip upon approach and wear down considerably more slowly allowing the AFM user to compare images without loss of resolution.

Compare C|D|I CNT Probes for AFM with the other available CNT probes

The patent pending technology used by C|D|I provides CNT probes from that uniquely address many of the problems encountered by users of other CNT probes available today.

Feature	C D I CNT Probe Advantage	Other CNT Probe	C D I CNT Probe
Shape	Perfectly straight tip remains normal to the surface in compression regime	Curved tips deflect more easily, requiring calculations to correct for errors	Straight More accurate images
Attachment method	Proprietary process securely attaches probe and re-enforces the base	Attachment is weak so the tip often snaps off the cantilever	Strong Longer life-time, improved results, increased ROI
Probe design	True CNT probe is not brittle so users encounter less breakage	Carbon fiber probe is brittle and easily shattered	Durable Longer life-time, increased ROI
Mounting	Mounted perpendicular to the imaging surface	Angle not controlled, so must select only the 'best' probes.	Better overall results Reliable imaging results from probe to probe

C|D|I Management Team

Ramsey M. Stevens, Founder and President

Ramsey M. Stevens, is recognized as a world leader in the development and use of carbon nanotubes (CNTs). He founded C|D|I in February, 2008 to commercialize a process for the manufacturer of CNTs that was developed while he was working at the Center for Nanotechnology at NASA, Ames Research Center and subsequently perfected at Modus.

He co-founded several research companies to work with government funding for his ongoing research projects. This research allowed him to develop the intellectual property (IP) that is the basis for C|D|I product development.

Previous to C|D|I, Stevens worked in nanotechnology at UC Santa Barbara with Dr. Paul Hansma, Veeco (CNT product development), and NASA, Ames Research Center.

Mr. Stevens has authored more than 40 technical papers and presented at numerous conferences. He has the exclusive license for the IP at the center of C|D|I and he owns several subsequent filings.

Mr. Stevens earned a B.S. in Physics from the University of California at Santa Barbara.

Dr. Vance Nau, CEO

Vance Nau, Ph.D. joined C|D|I in July 2008. Nau has more than twenty-five years of experience leading, managing and developing R&D, Sales and Marketing functions in fast-paced technology-based arenas. He has a track record of building highly successful management teams, restructuring departments, and “kick-starting” small technology companies.

Most recently, Nau was the Chairman, CEO and President at Molecular Imaging Corp. where he designed and executed a turn around plan that moved the company to profitability, secured funding for a management buy-out, and then successfully negotiated the sale to a strategic buyer. Prior to Molecular Imaging he has held key executive management positions at a number of high technology companies including Roper Industries, Gatan and Spectra-Physics.

Dr. Nau received his Ph.D. in Analytical Chemistry at the University of Illinois. Prior to that, he earned a M.S. in Chemistry at the University of Illinois, and a B.A. in Chemistry and Biology at Central Missouri State University.

C|D|I Board of Directors

Vance Nau, CEO

Ramsey M. Stevens, Founder & President

Stan Yarbro, Investor