NSF Centers – Partnership with Industry

W. Lance Haworth
Director, NSF Office of Integrative Activities
Corporate Alliance Meeting
Arlington, VA 18 June 2008

NSF Industry-Connected Activities

- Reviewers, Program Directors, AC members
- Many Individual-Investigator Grants
- Industry/University Cooperative Research Centers (I/UCRC)
- SBIR/STTR
- Grant Opportunities for Academic Liaison with Industry (GOALI)
- Partnerships for Innovation (PFI)
- Experimental Program to Stimulate Competitive Research (EPSCoR)
- User Facilities
- Centers and Networks

NSF Industry-Connected Activities

NSF centers and networks typically include and encourage linkages or partnerships with industry

For Example:

- Engineering Research Centers (ERC)
- Science and Technology Centers (STC)
- Materials Research Science and Engineering centers (MRSEC)
- Nanoscale Science and Engineering Centers (NSEC)
- National Nanotechnology Infrastructure Network (NNIN)
- Network for Computational Nanotechnology (NCN)

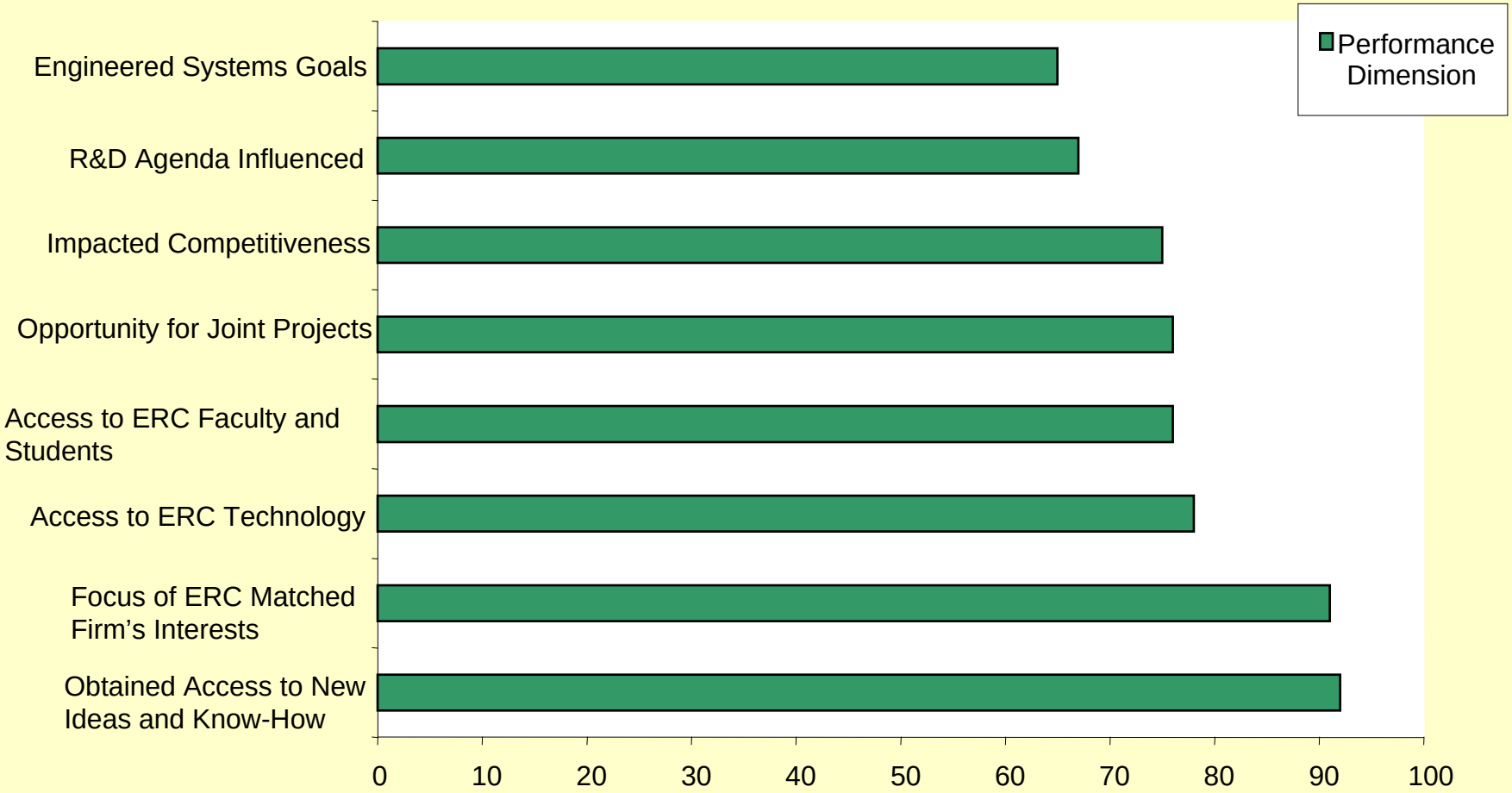
Engineering Research Centers

The ERC-Industry Partnership

http://www.erc-assoc.org/

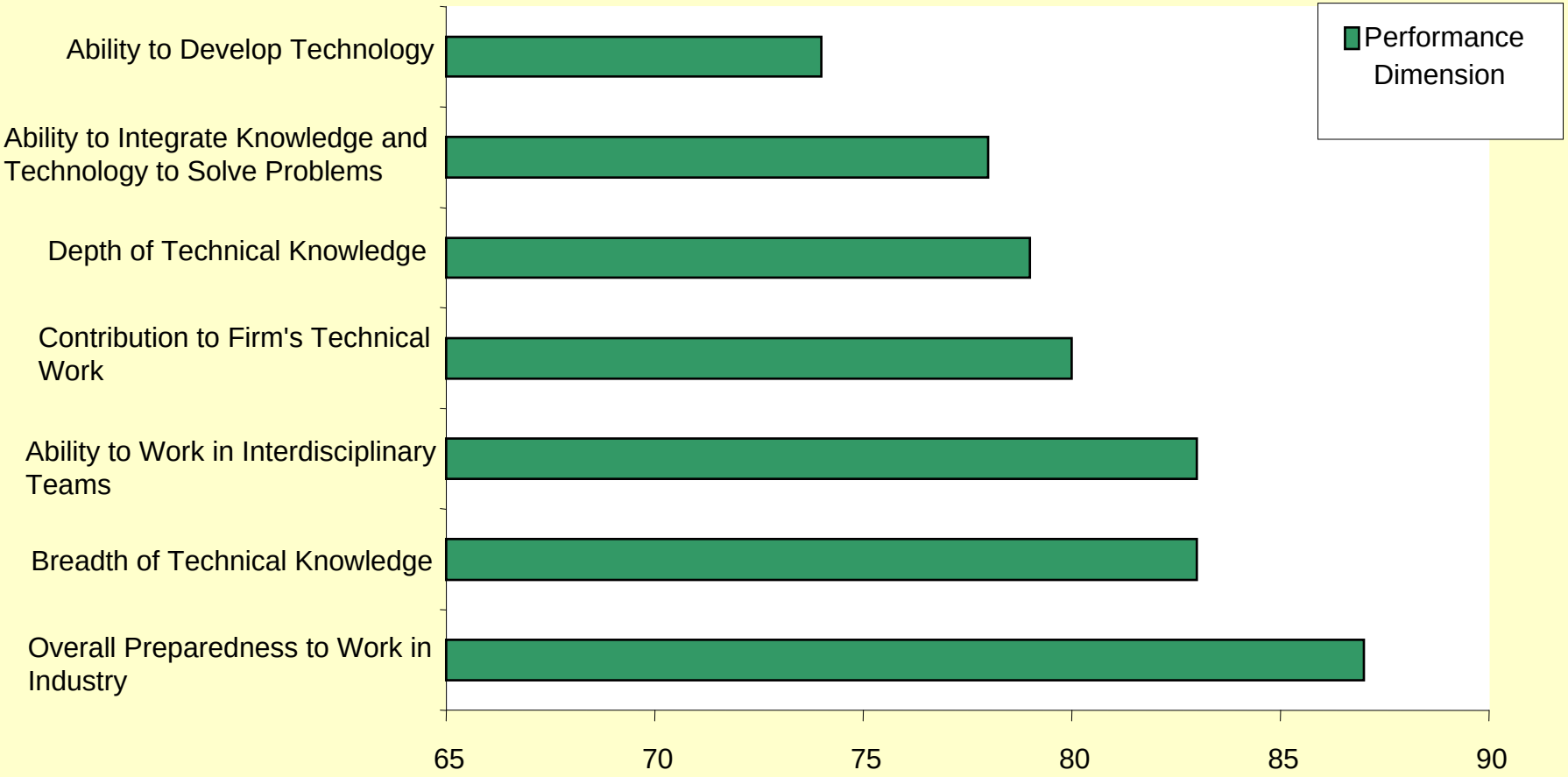
- A required key feature of all ERCs is: *"Form partnerships with industry in research and education to speed technology transfer and develop new generations of engineers with knowledge of industrial practice and the ability to compete in a global economy"*
- The industry collaboration is governed by a center-wide membership agreement, IP policy, and Industrial Advisory Board
- In FY 2007 there were 341 total memberships encompassing 214 unique industrial members of the 23 ERCs, for an average of 15 firms per center
- Industry provided a total of $25 million in direct support for the ERCs in FY 2007.
- From 1985 through 2007, ERCs have granted 2,459 patent and software licenses and spun off 113 firms with 1,316 employees

ERCs Provide Significant Benefit to Their Member Firms



Percentage of ERC member firms' representatives responding postively on each performance dimension.

Comparisons by Member Firms of Performance of ERC Graduates With Non-ERC Hires



Percentage of ERC member firms' representatives rating the former ERC students/graduates hired by their firm as "Better Than" or "Much Better Than" equivalent hires without ERC experience.

Science and Technology Centers

http://www.nsf.gov/od/oia/programs/stc/ and see "Profiles in Team Science"

Survey of Classes 2000-2002

Knowledge-Focused and Product-Focused Knowledge Transfer

- KT programs may focus more on transferring products or on transferring knowledge and ideas.
- *Product-focused* Centers place high value on commercializing technologies and involving industrial partners in their research.
- *Knowledge-focused* Centers place a higher value on disseminating information to public entities, NGOs, and the research community.
- These differences shape both the Centers' KT Partnerships and their KT Activities.

Science and Technology Centers

Classes of 2000 / 2002

Self-reported Focus of Centers

	Class of 2000	**Class of 2002**
Product-Focused	CfAO, CRSP, NBTC	CBST, waterCAMPWS, MDITR
Knowledge-Focused	CBN, SAHRA	NCED, CENS, CISM

Data source: 2003 interviews with KT directors

NSF Science and Technology Centers

Classes of 2000 and 2002

	Patents	Licenses	Invention Disclosures	Startup Companies
Class of 2000 (years 2-6)	29	2	51	7
Class of 2002 (years 1-4)	14	4	32	9
Total	**43**	**6**	**83**	**16**

Data source: Class of 2000 Annual Reports Years 2-6, Class of 2002 Years 1-4.

Materials Research Science and Engineering Centers (MRSECs)

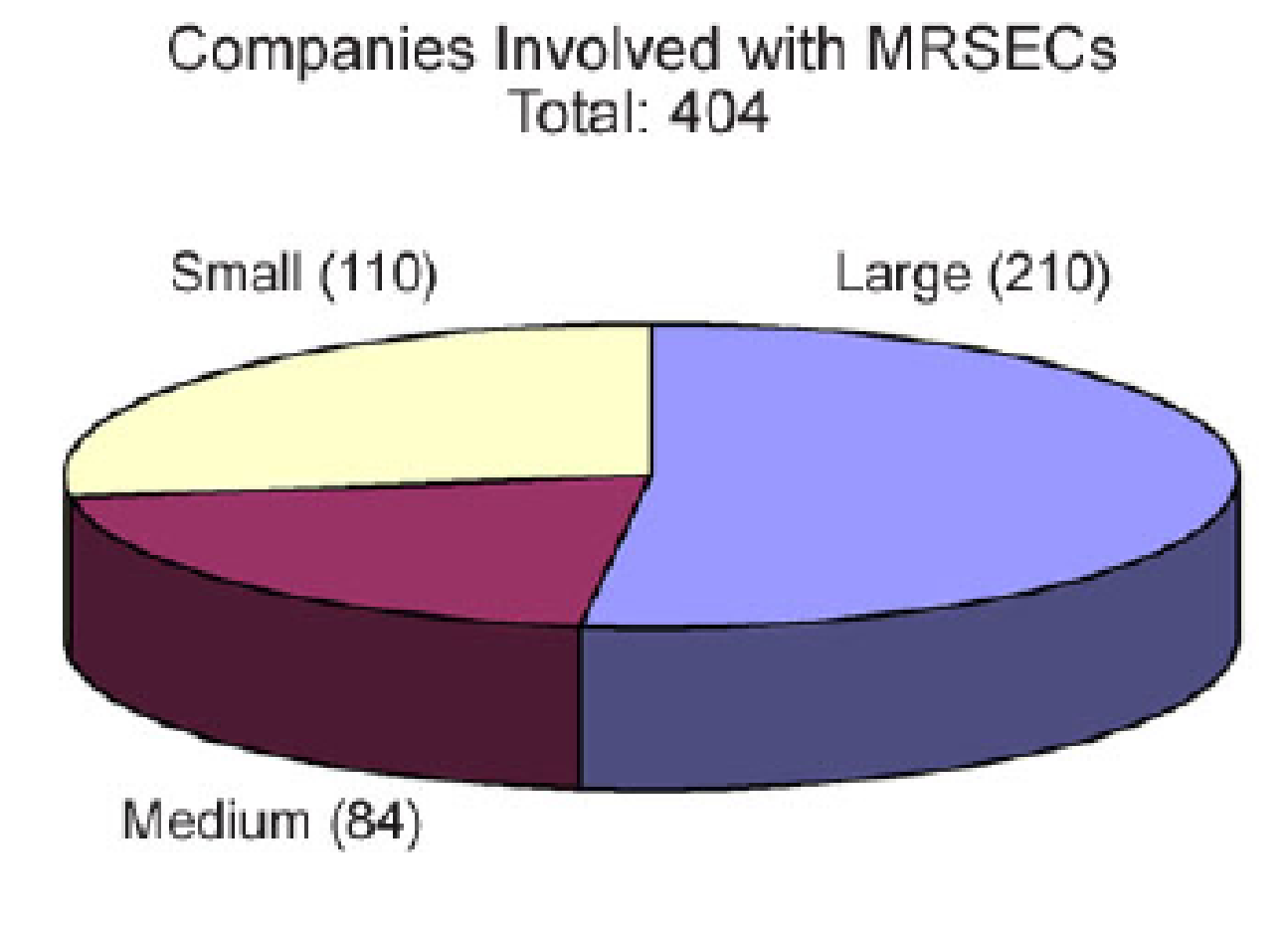
http://www.mrsec.org/

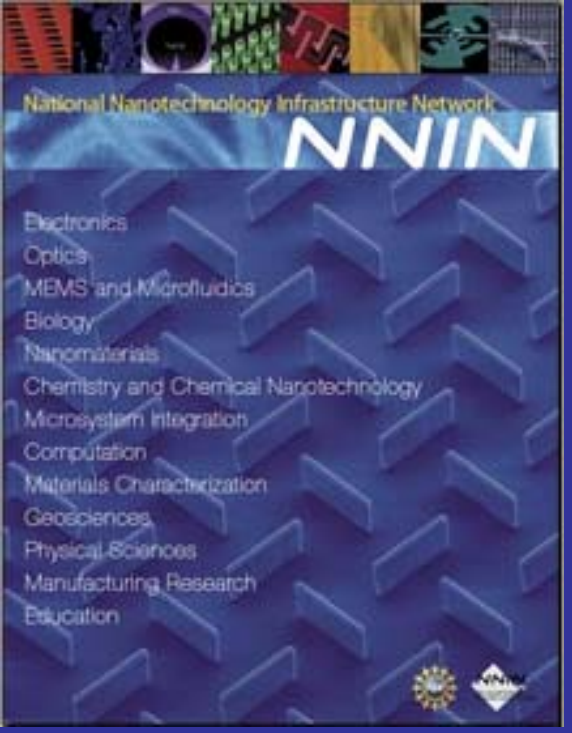
- Support active cooperation with industry, to stimulate and facilitate knowledge transfer among the participants and strengthen the links between university-based research and its application

- Joint research programs; affiliate programs; joint development and use of shared experimental facilities; access to user facilities; visiting scientist programs; joint educational ventures; joint seminar series and workshops; stimulation of new business ventures; involvement of external advisory groups; and industrial outreach programs

- *The majority of MRSEC trained students and postdocs are hired by industrial R&D or manufacturing organizations*

Materials Research Science & Engineering Centers





The National Nanotechnology Infrastructure Network

NNIN *http://www.nnin.org/*

NNIN is an integrated partnership of thirteen user facilities, supported by NSF, providing unparalleled opportunities for nanoscience and nanotechnology research.

The network provides extensive support in nanoscale fabrication, synthesis, characterization, modeling, design, computation and hands-on training. in an open, hands-on environment, available to all qualified users.

NNIN and Industry

NNIN provides a very welcoming environment for industry

- No intellectual property barrier
- Low cost
- Broad equipment and knowledge resource
- People support
- Independent project execution
- Many companies have staff resident at NNIN sites, who live in the local community and interact remotely with the company
- Staff of NNIN can also support industrial projects remotely
- >250 companies currently take advantage of these resources
- Industry can also benefit from training and other informational material available at our web-site

Please visit *www.nnin.org*

NNIN Support for Industry

Large Companies
Specialized resources
Small Companies
Broad range of resources

Technology
Expertise
Processes
Equipment
Process Support

National, Complete and Accessible
Geographically diverse
Distributed technical specialization
Complex integration
Responsive open culture

Affordable
On-site and remote usage

Staff supports execution of projects through training and direct project support
Intellectual property resides with the company; do not tell us your industrial secrets
Conduct your project yourself after adequate training
Leverage computation, characterization, low cost, complex infrastructure

Some examples

Liquidia Technologies Inc. is a privately-held nanotechnology company that designs, develops, and manufactures precisely engineered particles and films for a wide variety of life and materials science applications.

Within life sciences, Liquidia is focused on the development of Engineered Drug TherapiesTM for nucleic acid delivery, as well as highly targeted therapeutics for the treatment of cancer and other diseases. Materials science applications include nanoscale patterned optical films for use in display technologies and photovoltaic devices.

The company was founded in 2004 on the discoveries of Professor Joseph DeSimone and colleagues at UNC Chapel Hill and is located in Research Triangle Park, North Carolina. The company has raised more than $24MM in funding to date, and is backed by New Enterprise Associates, Wakefield Group, and other well known investors.

www.liquidia.com

JumpStart helps Small Businesses Solve Technical Problems

High-tech companies are often faced with unexpected technical challenges that have to be solved before a product can be brought to market. Such problems can be deadly for small companies, which rarely have the resources to operate a large R&D lab staffed by technical experts. To help small companies surmount these hurdles, the Cornell Center for Materials Research (CCMR) has developed the JumpStart program — an innovative, semester-long partnership that pairs small New York State businesses with technically savvy Cornell faculty to solve vexing problems. The company applies directly to the CCMR; staff then find a faculty member with the appropriate expertise. Matching funds from the New York State NYSTAR program allow the small business to leverage their R&D funds. Since 2005, the JumpStart program has successfully formed 15 partnerships between Cornell faculty and New York State companies.

http://www.ccmr.cornell.edu/industry/jumpstart/

BASF Commits $20 Million To Harvard Research

24 October 2007

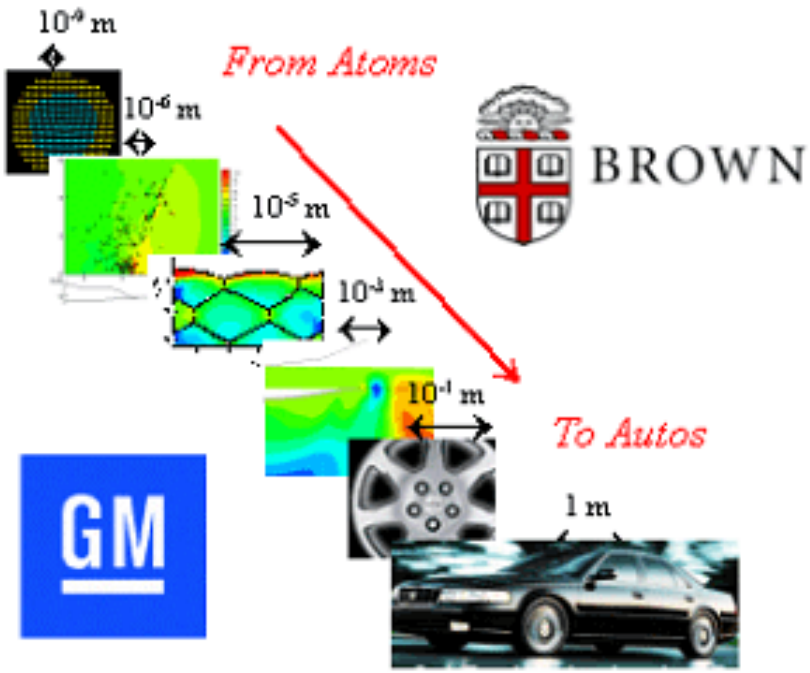
Five-year program will draw on Harvard's School of Engineering and other departments

BASF and Harvard University's Office of Technology Investment have agreed to form the BASF Advanced Research Initiative. With $20 million from BASF, the five-year program will initially support 10 postdoctoral students and other Harvard researchers, primarily in the School of Engineering & Applied Sciences. However, the initiative will also draw on a network of faculty and students in labs throughout Harvard.

The partners say the agreement sets up a novel model for university-industry collaborations. They call it a "fully collaborative, integrated partnership" among Harvard and BASF researchers intended to foster a "vibrant and dynamic" intellectual exchange.

Project areas could include applied physics, applied mathematics, chemical biology, systems biology, bioengineering, and materials science.

From Atoms to Autos



The Materials Research Science and Engineering Center at Brown University has partnered with General Motors Corporation to establish the **GM/Brown Collaborative Laboratory for Computational Materials Research (CRL).** This is one of nine laboratories established worldwide by General Motors to accelerate the pace of innovation in strategic technology areas. The Center is a world leader in the application of computer simulations that straddle the wide gap in length scale between atoms and the macroworld. Significant progress has been made in the development of new types of high performance materials for automobile applications including lightweight materials, specialized alloys, and failure resistant coatings.

1-888-OMNIGUIDE

OmniGuide®

Quick Link Please choose

ABOUT OMNIGUIDE | TECHNOLOGY AND PRODUCTS | APPLICATIONS | PATIENT | CONTACT

COMPANY OVERVIEW
INVESTORS
CAREERS
PRESS

OmniGuide

Extending the reach of minimally invasive CO2 laser surgery using the innovative BeamPath flexible photonic band-gap fibers. Delicate cutting and coagulation with minimal thermal damage can be extended to delicate procedures such as:

- Stapedectomy
- Endoscopic skull base and pituitary surgery
- Endoscopic sinus and nasal procedures
- Trans-oral laryngeal microsurgery
- Partial laryngectomy
- Tracheal stenosis
- Glottic and subglottic respiratory papillomas surgery
- Office based trans-nasal (flexible endoscopy) respiratory papillomas procedures. **Watch patient testimonials**.

Recent News

May 15, 2008
Omniguide® Secures $25 Million in Funding to Support Continued Growth and New Market

SITE MAP – CONTACT – LEGAL – PRIVACY POLICY

OmniGuide Inc. One Kendall Sq. Building 100, Cambridge MA 02139. Phone: 617/551-8444, Fax: 617/551-8445

Design: limor.com

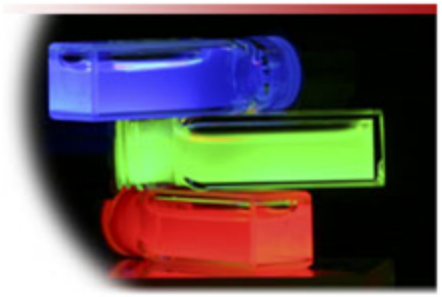
Address http://qdvision.com/

QD VISION

HOME | ABOUT | CAREERS | CONTACT

Welcome to QD Vision

QD Vision, Inc. is a nanotechnology product company delivering a new generation of display and lighting solutions to major industries where color, power and design matter. QD Vision's technology platform, based on quantum-dot technology, will deliver unparalleled color and brightness and require less power than current-generation technologies for consumer electronics products, flat-panel displays, electronic signage, solid-state lighting, and national security applications.



in the news

QD Vision Glowing from In-Q-Tel Investment
Xconomy

AlwaysOn Names QD Vision Top 100 Company
AlwaysOn Insiders Network

Nanocrystal Displays
Technology Review

QD Vision Inc.
313 Pleasant St
Watertown, MA 02472
617.926.0001
info@qdvision.com

Copyright ©2005 QD Vision Inc., All Rights Reserved

Thank You!

lhaworth@nsf.gov