

NIST Combinatorial Methods Center



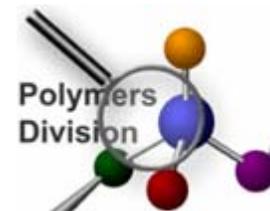
We help industry accelerate materials discovery

WELCOME

Secretary Gutierrez



Materials Science and Engineering Laboratory

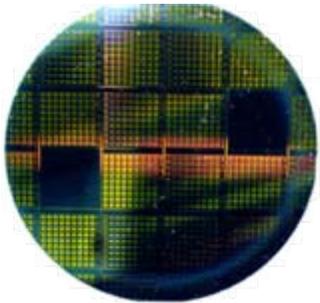
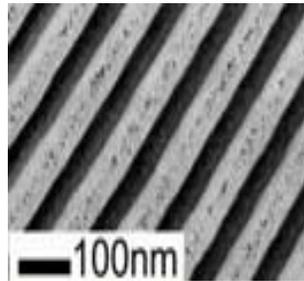
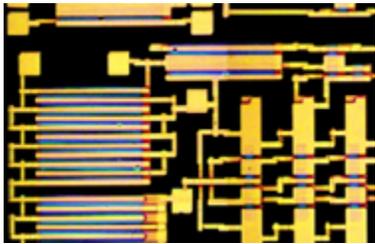


January 29, 2007

Barrier to Innovation: "99% Perspiration"

R&D of *one* new material can cost \$20M and 2-10 years

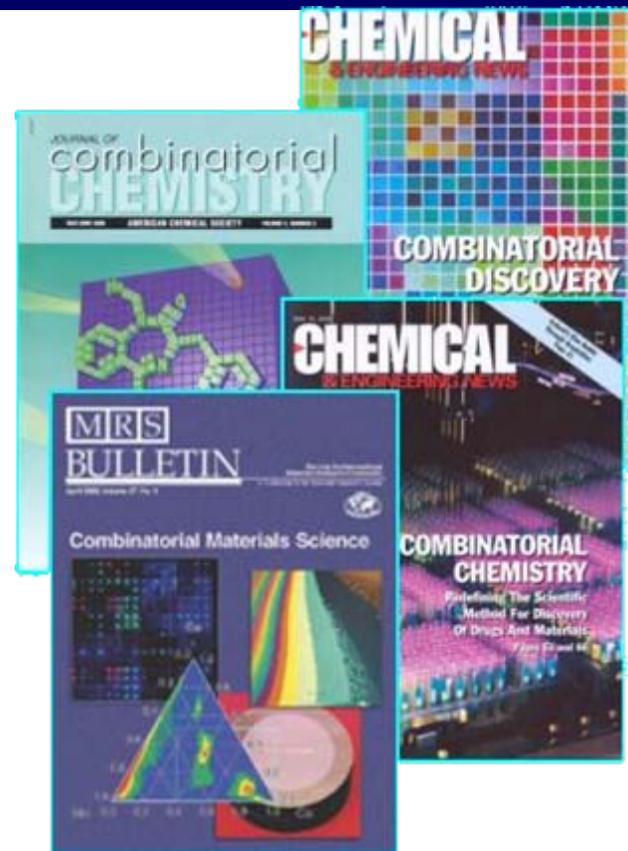
Total cost to U.S. Industry: \$20B/year



Edison's "light bulb" problem: Materials discovery can involve thousands of tests.

High-Throughput and Combinatorial Methods

- Revolutionized drug discovery in the pharmaceutical industry
- A way to do huge numbers of tests faster
- Estimates: new products in 1/5 the time and at 1/5 the cost
- Industry is eager to use these methods to accelerate *new materials discovery*



"The train is leaving the station. You are either on board, or will be left behind." - Richard Gross, VP for R&D, Dow Chemical

"70% of the worlds 30 largest chemical companies have substantial investment in combi programs" - Peter Cohen, Symyx

NIST Combinatorial Methods Center

Formal launch: January, 2002

- New high-throughput *measurement* methods
- New "open source" industry consortium model
 - No proprietary information
 - Findings put quickly into the public domain
- Customer focus
 - Industry needs and feedback
 - Transfer of NIST methods



Center Consortium Members



23 Members in 2006/2007:



ExxonMobil

Procter & Gamble



Vistakon

National Starch & Chemical
A member of the ICI Group



Honeywell



Boston Scientific

AVON
the company for women

L'ORÉAL



BASF

Rhodia

ARKEMA

Bayer

Veeco LORD

Total sales of members: \$700B/year

Consortium Membership Fee: \$10K/year

Focus Project Membership Fee: \$30K-70K/year

NCCMC Impact



- Over 20 companies and universities use NIST high-throughput methods
- NIST trained over 25 scientists in these revolutionary techniques
 - Employed in industry and academia
- NIST helped form and lead a new technical community among stakeholders