

CIE to IPrime: An Enduring Success

Industrial Partnership for Research in
Interfacial and Materials Engineering

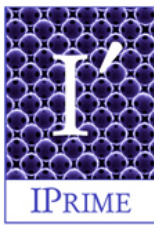
December 3, 2009

Bob Lewis
Director of Technology Transfer



UNIVERSITY OF MINNESOTA
Driven to DiscoverSM

CIE (Center for Interfacial Engineering)



- Maximum 11 years of funding (1988-1999)
- Center award: \$2.5M per year
- Built on collaborative U-of-MN culture
- Well-established industry ties
- Origins in UMPEC (Polymerization & Polymer Processing Engineering Center) – early 80s
- Strong industrial outreach component



CIE Research Programs

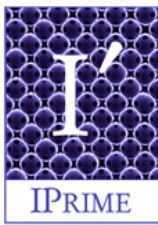
- Bio-Interfacial Processes
- Coating Process Fundamentals
- Polymer Microstructures and Processing
- Surfactant and Self-Assembly Processing



CIE Legacies

- Characterization Facility (>\$7M investment)
- The involvement of more than 860 students
- 393 PhD degrees, 59 Master's degrees
- More than 1400 published papers
- The involvement of 114 Industrial Fellows
- Six textbooks (“Advances in Interfacial Engineering” series)
- Core programs (CPF, MP, NMP)
- Fostered a culture of integrated research, education and industrial interaction that endures in IPrime





IPrime

- Legacy organization from CIE
- Established in 2000
- Nearly \$1.2 million from 36 companies (\$50K per year from large companies, \$7.5K from small companies)
- 54 faculty from 10 departments
- 8 interdisciplinary research programs
- Close affiliation with Minnesota MRSEC
- Open-literature approach
- Industrial Fellows program



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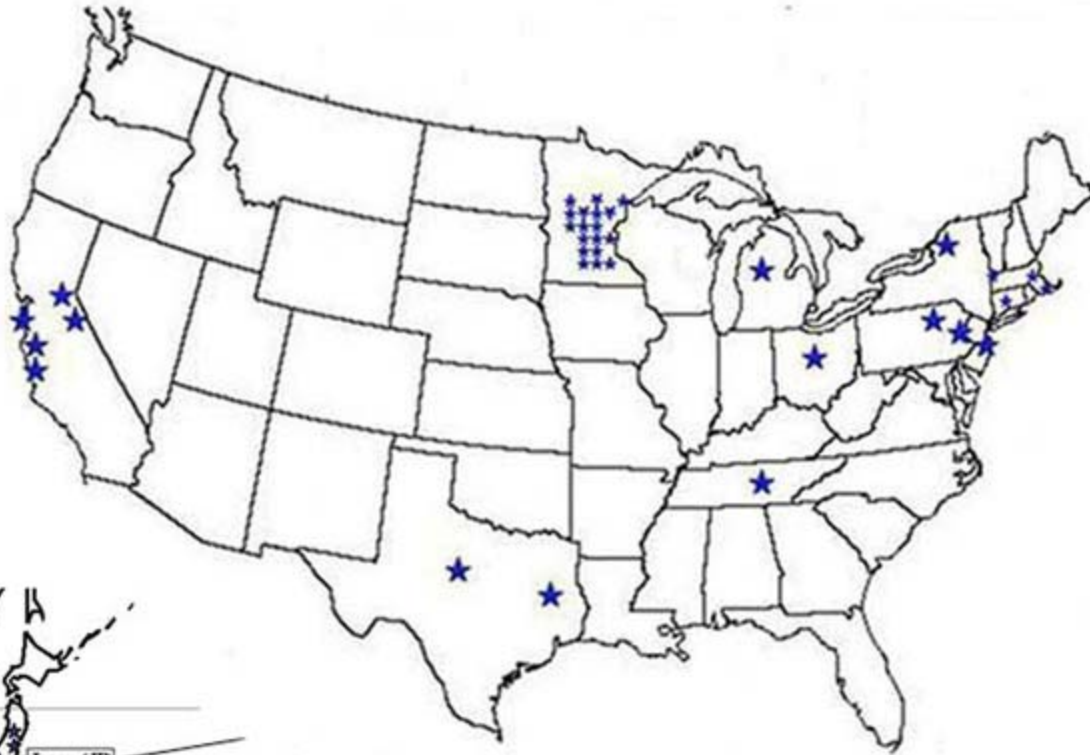
Hearing Components
Experts In The Ear Canal

Infineum



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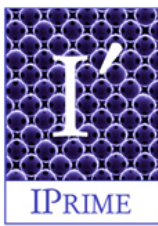
South Korea:
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 Sekisui Chem.
 Sony
 Sumitomo Chem.



France (Total)
Germany (Henkel)



IPrime Research Programs

- Biocatalysis and Biosynthesis
- Biomaterials and Pharmaceutical Materials
- **Coating Process Fundamentals**
- Magnetic Heterostructures (MRSEC)
- **Microstructured Polymers (MRSEC)**
- **Nanostructural Materials and Processes**
- Organic Optoelectronic Interfaces (MRSEC)
- Renewable Energy Materials (MRSEC)



Factors Affecting a Successful Transition - Faculty

- Mutual faculty and industrial interest in continuing the interaction
- Faculty interest in and curiosity about applied problems (substantive science)
- Discretionary money of great benefit to faculty
- Senior faculty who model successful industrial interaction for younger faculty
- Association with the Minnesota MRSEC



Factors Affecting Successful Transition - Industry

- CIE was broad by definition so it fostered many industrial collaborations
- Industrial Fellows program
- Adopting a continuous-improvement model for center
- Soliciting and acting on industrial input
- TACs (Technical Advisory Committees)



Factors Affecting Successful Transition – Staff/Structure

- Embrace “customer focus” (make it easy for industry to do business with you)
- Understand R&D management issues
- Bridge the gap between pure and applied science
- Foster a collegial culture
- Open approach minimizes legal wrangling



Long term impacts

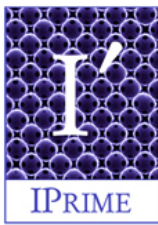
- Advancement of science
- Contribution to knowledge base
- Polished, employable students
- Degrees granted
- A new society: International Society for Coating Science & Technology (ISCST)
 - The 15th International Coating Science and Technology Symposium September 12-15, 2010 St. Paul, MN
- Fostered a culture of integrated research, education and industrial interaction that endures in IPrime



Impacts of Loss of Funding

- Education program ceased
- Center infrastructure and administration much reduced
- Research curtailed
- NSF cache lost





NSF's Role in Transition

- No role per se in the transition
- IPrime was established on its own merits
- NSF funding of MRSEC helped IPrime



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Conclusions

- Graduated ERCs can endure with the right combination of factors
- University-Industry Win-Win
 - Must be tangible benefits for both sides
- Technical collaboration between university and industry can complement the mission of both organizations

