

# **Proposal for Industrial Outreach Activities**

## **Center for Environmentally Benign Semiconductor Manufacturing**

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# Vision of the CEBSM

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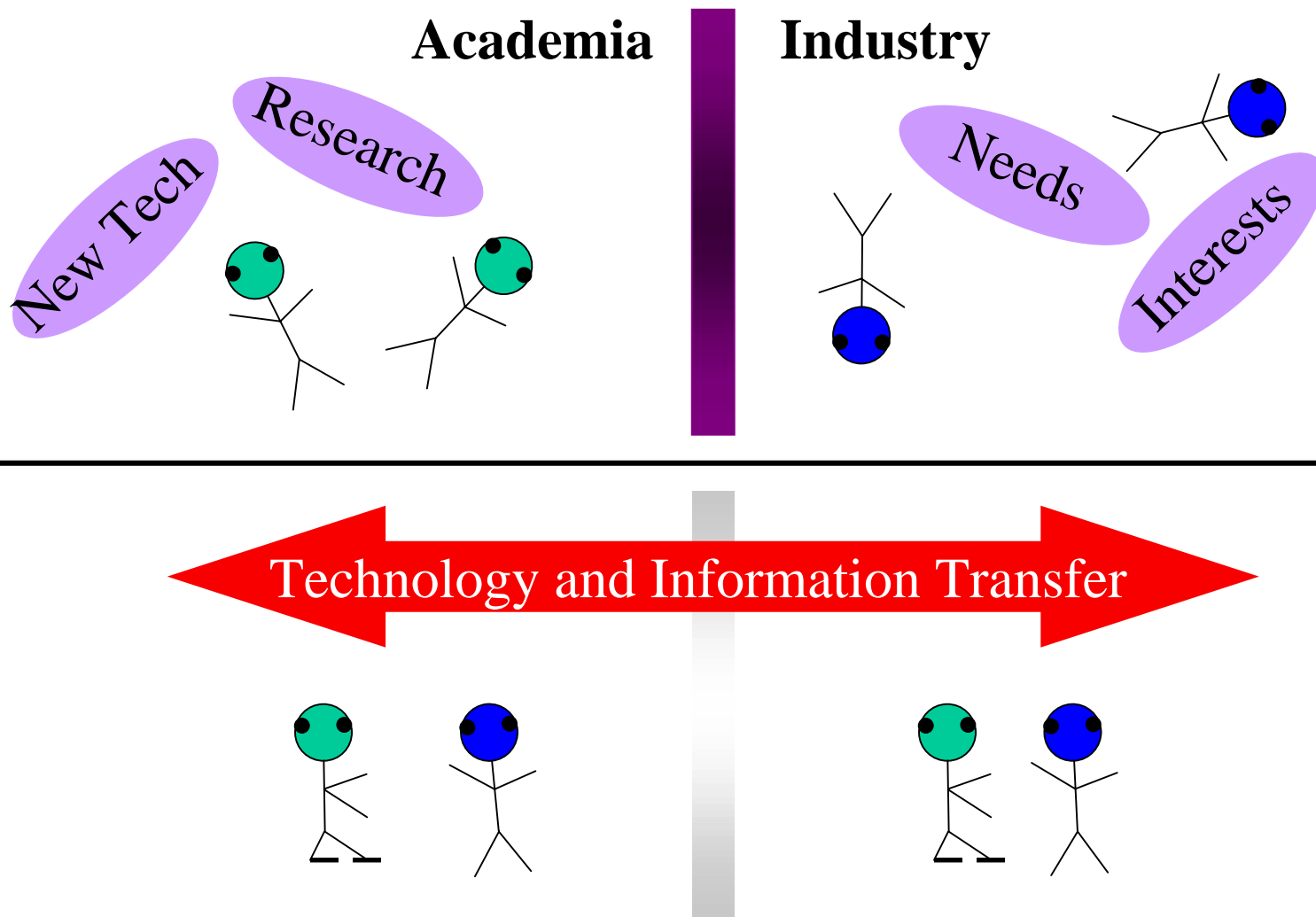
*Create and develop the science, technology, and educational methods that will lead to future semiconductor manufacturing facilities with minimal consumables (e.g. water, energy, acids, solvents, gases) and minimal emission of environmentally harmful, unsafe, and unhealthy waste materials.*

# History of Engineering Research Centers

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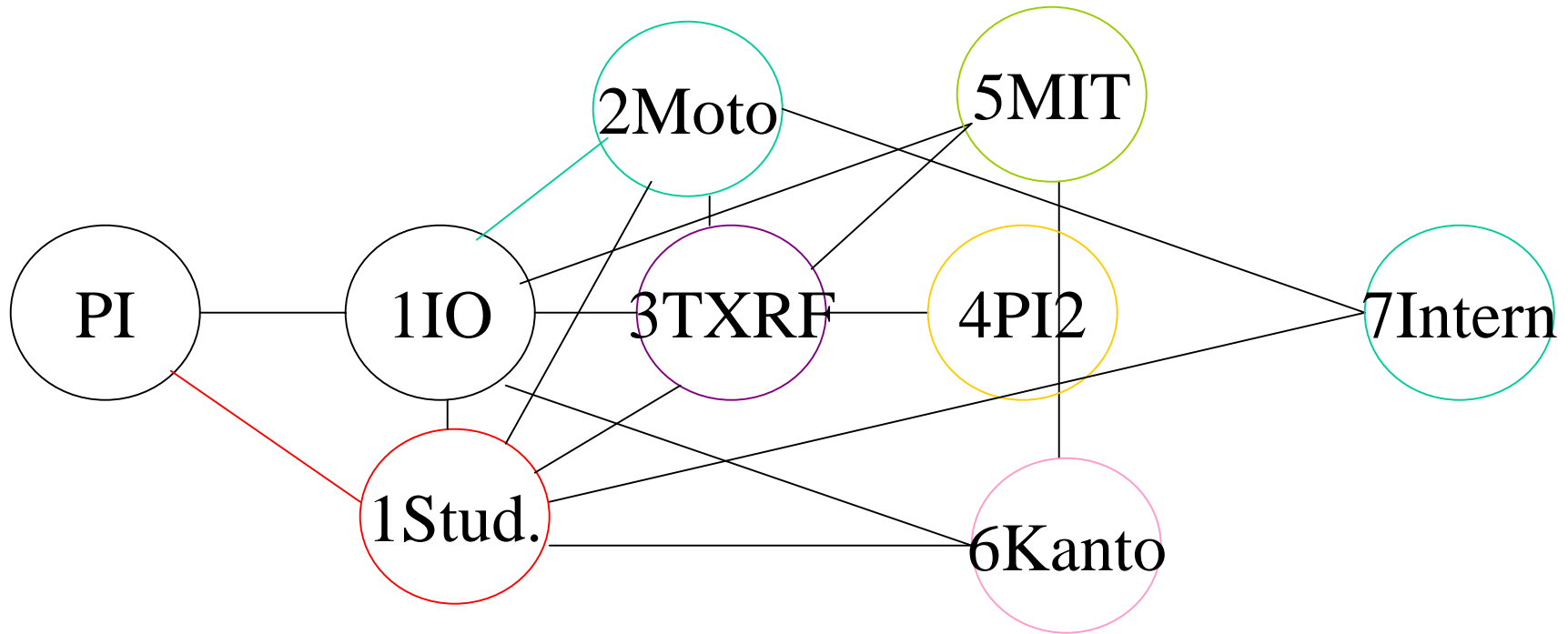
- Established in 1985 to help improve US competitiveness in the global marketplace.
- Inability of U.S. industry to turn research discoveries into high quality, competitive products
- Cross-disciplinary research to prepare engineering graduates with the diversity and quality of education needed by U.S. industry

*Technology and Information Transfer through Serendipity*



*Transparent and Effective Information Flow using Industrial Outreach*

# Collaboration Map



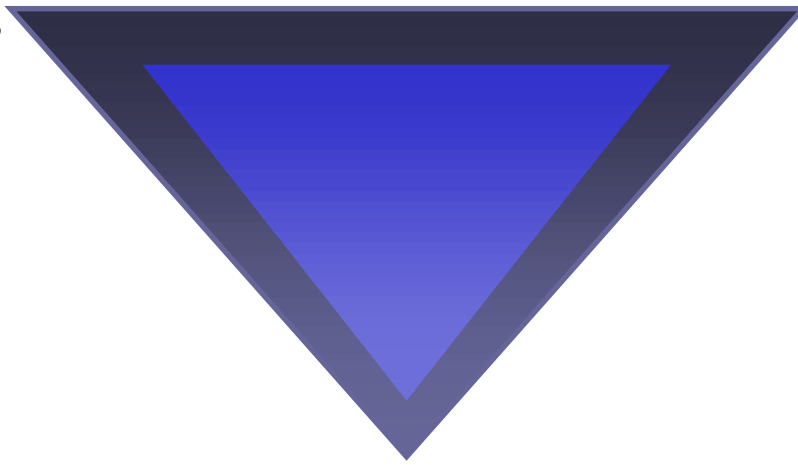
# Objective of Industrial Outreach

**To create an Integrated, Leveraged and Synergetic Environment to:**

- **Promote and enable university and industry team building**
- **Provide a centralized source of technology and information Transfer**
- **Provide pathways for sharing of resources**
- **Enable center growth**

**Teleconferences**

**Web Site**



## **Annual IAB Meeting**

- Weekly Teleconferences: Exclusive and regular form of communication. University, Industry, Guest speakers, strong student participation.
- Web Site: Secure, inexpensive mechanism for technology and information transfer. Marketing tool for new members, fund raising
- IAB Meeting: University/Industry team building through joint presentations, panel discussions, breakout sessions. Invited speakers

# **Resume of Industrial Outreach Activities/Responsibilities**

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- **Recruit new Industrial partners into the Center<sup>1</sup>**
- **Broker and Cultivate Industrial mentor relationships with faculty and student<sup>2</sup>**
- **Broker Industrial equipment and funding donations**
- **Annual IAB meeting**
- **Coordinate all Center communications (e.g., WWW, teleconferences)**
- **Organize workshops and short courses.**



# **<sup>1</sup>Recruit New Industrial Partners**

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- Site visits to prospective new members
- Create and distribute marketing materials
- Author articles on center research activities for trade journals, like Semiconductor International, etc.
- Presentations at tradeshow, SemiconWest
- Fund raising from industrial sources

# **<sup>2</sup>Industrial Mentor - Faculty/Student Relationships**

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- Cultivate relationships with existing industrial mentors
- Recruit new industrial mentors and match them with appropriate center research projects through center PIs and students
- Facilitate sharing of resources between universities and industry
- Secure appropriate summer internships for center students
- Recruit visiting scientists from industry and where appropriate coordinate their activities with center PIs and students.

# Deliverables, 1998

- New Affiliate members: Applied, Kanto and Meissner-Wurst
- Nine student summer internships
- “Novel Approaches for Environmental and Performance Gains in Semiconductor Manufacturing,” to appear in Semiconductor International special issue on ESH in Semiconductor Manufacturing, February 1999.
- IAB meeting Panel Discussions on:
  - Back-End-of-Line Processes (PFC and new Chemicals issues)
  - Novel High- K dielectric materials
  - Energy Optimization in the Semiconductor Industry (videoconference)
  - Chemical-Mechanical Polishing
  - Risk Assessment
- IAB meeting student/mentor breakout session
- Weekly teleconferences (with web access) and seminar series
- Special teleconference between Center PIs and AMD on Cu-CMP.
- Site visits to potential new members, TEL, EKC Technology, etc.

# Future Plans

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- Perform site visits to companies targeted for affiliate memberships. Emphasis on suppliers to semiconductor manufacturers and international companies.
- Develop relationships with international semiconductor associations.
- Develop closer relationships with tool suppliers. In collaboration with Semi-Sematech explore viability of technology focus group memberships.
- Continue Panel Discussions and Breakout sessions at IAB meeting. Extract written materials from panel discussions and breakout sessions to be distributed to industrial partners.
- Provide bimonthly electronic newsletter via email for regular and exclusive communication of Center news, business and events with industrial partners.
- Develop password secure web site for exclusive communication with industrial partners, associations and perspective new members.
- Organize technology transfer short courses and workshops
- Continue use of trade journals, like Semiconductor International and conferences and trade shows, like SemiconWest, to heighten semiconductor community awareness of Center activities.