



# Research at SIUC: Fall 2004 Update

**Presented to the SIU Board of Trustees  
October 14, 2004**

**John A. Koropchak  
Vice Chancellor for Research  
and Graduate Dean**

**SOUTHERN  
150**

# Research, Scholarly/Creative Activity, & Research Training (Hereafter, *Research*) at SIUC:

Why?

&

Where are we now?



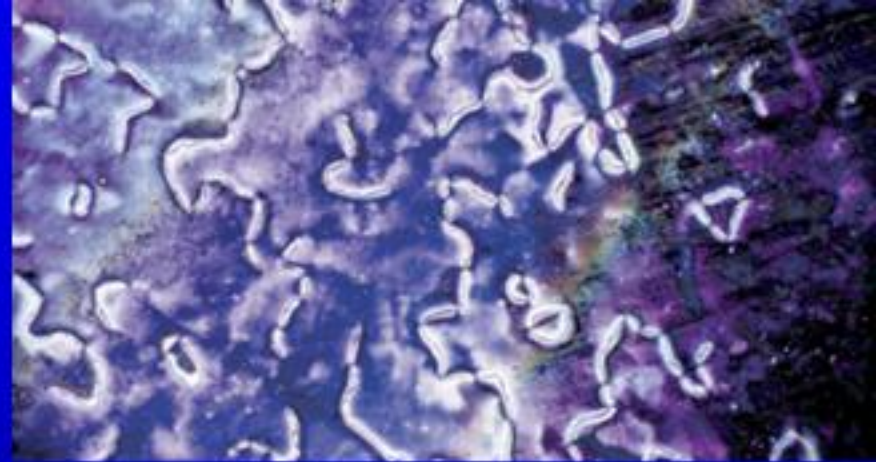
# *Carnegie Classification of Institutions of Higher Education*

Distribution of Higher Education Institutions by 2000 Carnegie Classification

Category	Number of institutions	Percentage Distribution
<b>Total</b>	<b>3,941</b>	<b>100.0</b>
<b>Doctoral/Research Universities</b>	<b>261</b>	<b>6.6</b>
<b>Doctoral/Research Universities—Extensive</b>	<b>151</b>	<b>3.8*</b>
Doctoral/Research Universities—Intensive	110	2.8
<b>Master's Colleges and Universities</b>	<b>611</b>	<b>15.5</b>
Master's Colleges and Universities I	496	12.6
Master's Colleges and Universities II	115	2.9
<b>Baccalaureate Colleges</b>	<b>606</b>	<b>15.4</b>
<b>Associate's Colleges</b>	<b>1,669</b>	<b>42.3</b>
<b>Specialized Institutions</b>	<b>766</b>	<b>19.4</b>

NOTES: Figures in italics are aggregated from subcategories. Percentage details may not sum to totals due to rounding.

**\* DOCTORAL RESEARCH-EXTENSIVE: SIUC'S CLASSIFICATION**



## Mission areas of SIUC:

teaching, **research** and service.



# APPROXIMATE FACULTY EFFORT ASSIGNMENTS

	<u>Teaching</u>	<u>Research</u>	<u>Service</u>
<b>Doctoral Research Extensive</b>	<b>45%</b>	<b>45%</b>	<b>10%</b>
∨	∨	∨	∨
∨	∨	∨	∨
∨	∨	∨	∨
∨	∨	∨	∨
<b>Associate's Colleges</b>	<b>90%</b>	<b>0%</b>	<b>10%</b>

**Note: at doctoral research-extensive universities, research and teaching are heavily intertwined, especially at the graduate level, but also increasingly at the undergraduate level**

# Benefits of University Research

## Benefits to Students:

- ◆ Students learn not only what is in the textbooks of today, but what will be in the text books of tomorrow.



Professor Mike Madigan  
SIUC Outstanding Scholar 2001



Jennifer Carey  
Grad Student

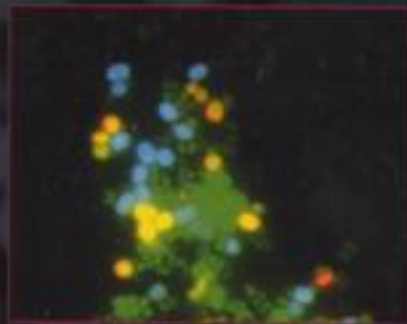
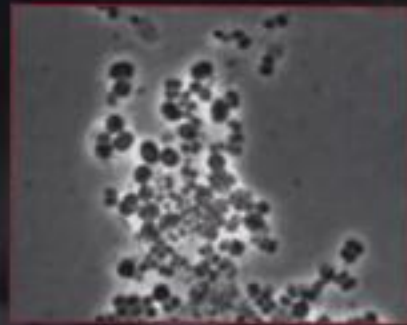
Matt Sattley  
Grad Student



The SIUC team at their first stop in the Dry Valleys. The rocky region is unusual in Antarctica for its lack of snow cover, but it has several permanently ice-covered freshwater lakes (Madigan/Achenbach Antarctica project).

150  
SOUTHERN

BROCK  
BIOLOGY  
OF  
MICROORGANISMS



TENTH EDITION

MICHAEL T. MADIGAN

JOHN M. MARTINKO

JACK PARKER

150  
SOUTHERN



December 11, 2002

## **SIUC's Madigan wins national teaching award**

*By Rod Sowers*

**CARBONDALE, Ill. -- Michael T. Madigan, professor of microbiology at Southern Illinois University Carbondale, has won the Carski Foundation Distinguished Teaching Award from the American Society of Microbiology.**

**The award recognizes excellence in the teaching of microbiology to undergraduate students.**

# Benefits of University Research

## Benefits to Students:

- ◆ Students learn not only what is in the textbooks of today, but what is in the **text books of tomorrow.**
- ◆ **Enriched, problem-solving experiences** that better prepare students for success.

- Provides graduate students with the cutting-edge experience they deserve



- Unique undergraduate research opportunities—hands-on, cutting-edge, problem-solving experience

McNAIR SCHOLARS PROGRAM  
IN ENVIRONMENTAL SCIENCES



*Preparing Scholars  
for graduate studies*

**SIU**  
SOUTHERN ILLINOIS UNIVERSITY  
CARBONDALE

CHALLENGE YOURSELF!

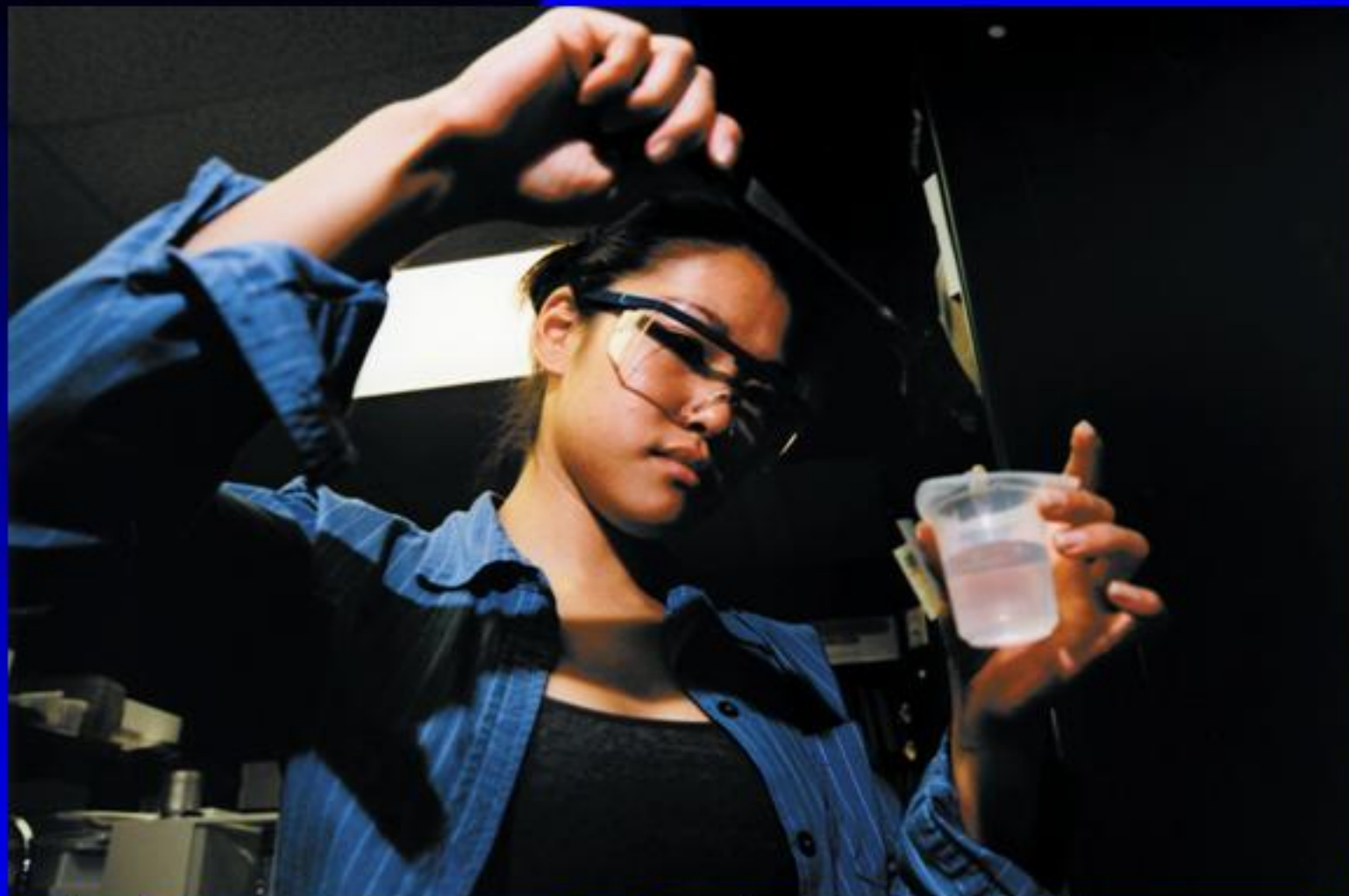
**UNDERGRADUATE  
RESEARCH  
OPPORTUNITIES**



SOUTHERN ILLINOIS UNIVERSITY  
CARBONDALE

**SIU**

**+Undergrad  
Assistantship  
Program**



**Sandie Cheung, as an undergraduate, received a grant from the Materials Research Society to develop a way to synthesize metal nanoparticles. Sandie started this research as a HS junior and co-authored a patent before she graduated!**

# Benefits of University Research

**Research: scholarly and creative activity, and research training**

## Benefits to Students:

- ◆ Students learn not only what is in the textbooks of today, but what is in the **text books of tomorrow.**
- ◆ **Enriched, problem-solving experiences** that better prepare students for success.
- ◆ **A major positive impact on the reputation of the University.**
- ◆ **Increased value of degrees** awarded to students in the future, present and past.

# Benefits of University Research

## Benefits to SIUC:

- A major positive impact on the reputation of the University.
- Opportunities for budgetary growth.



## SIUC Revenue Sources/Percents of Total Revenue: FY78-FY03



Source: IPEDS Finance Reports/Institutional Research/General Accounting

# Benefits of University Research

## Benefits to SIUC:

- A major positive impact on the reputation of the University.
- An opportunity and area for budgetary growth.
- Enhanced ability to attract additional resources to the University.
- Enhanced recruitment and retention of high quality students and faculty.

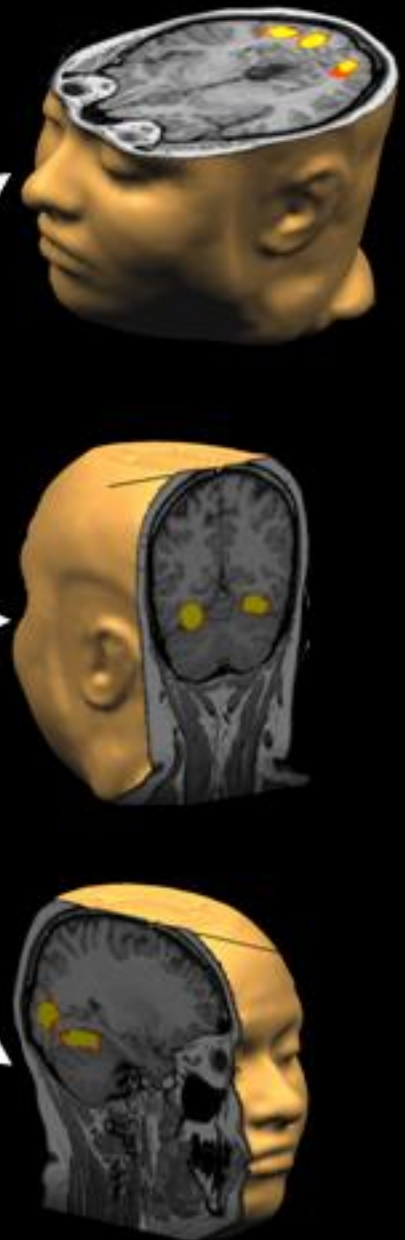
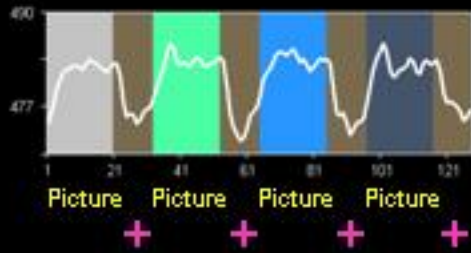
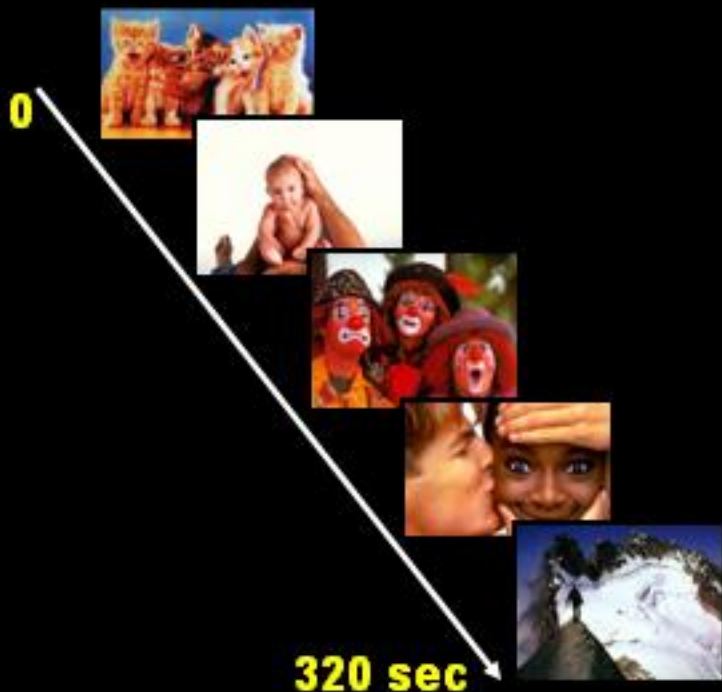




# Functional MRI

Observe Pictures

Brain Activity



# **Cost-share Collaboration**

- **In 2003, SIUC and the region had no fMRI capability (\$multi-M investment required)**
- **MRI at Carbondale Memorial Hospital upgraded via cost-share with SIUC**
- **Allowed hiring of Dr. Reza Habib (here today with graduate student Jessica Gerson, BS U California-San Diego) into the Department of Psychology in 2003; and others in 2004**
- **Cutting-edge experience for students via cost-effective collaboration**

# Benefits of University Research

## Benefits to SIUC:

- A major positive impact on the reputation of the University.
- Enhanced ability to attract additional resources to the University.
- An opportunity and area for budgetary growth.
- Enhanced recruitment and retention of high quality students and faculty.
- A unique strength that distinguishes SIUC from regional institutions.



# Illinois Research Universities

➤ **Doctoral research-extensive: only research university of any kind in the southern half of Illinois!**



# Benefits of University Research

## Benefits to Citizens and the Region:

- New knowledge, from scientific discoveries to works of literature or art.



Hilla Medalia: MA '04, winner of Outstanding Documentary, 2004 Angelus Awards, Sundance Nominee (see *Perspectives*)



Professor Allison Joseph, Dept of English

- **first-place, 2002 Wallace W. Winchell Poetry Competition**
- **2003 Word Press Poetry Prize**
- **fiction prize for 2004, Ohio Valley Literary Group writing contest**
- **second place for fiction, 2004 competition, Alabama Writers Conclave**

September 26, 2003

## Graduate students inspire youngsters

By Pete Rosenberg

**CARBONDALE, Ill. -- A group of Southern Illinois University Carbondale graduate students is using poetry to nurture and expand children's creativity and imagination.**

**Now in its second year, the Saluki Poetry Project allows children the freedom to express themselves through poetry. The weekly workshops, consisting of four, one-hour classes, begin Wednesday, Oct. 1, at the Carbondale Public Library. The workshops run from 4 to 5 p.m.....**



# Benefits of University Research

## Benefits to Citizens and the Region:

- New knowledge, from scientific discoveries to works of literature or art.
- Investments in research are highly valued by citizens (*Survey of Illinois Residents, 1999*).

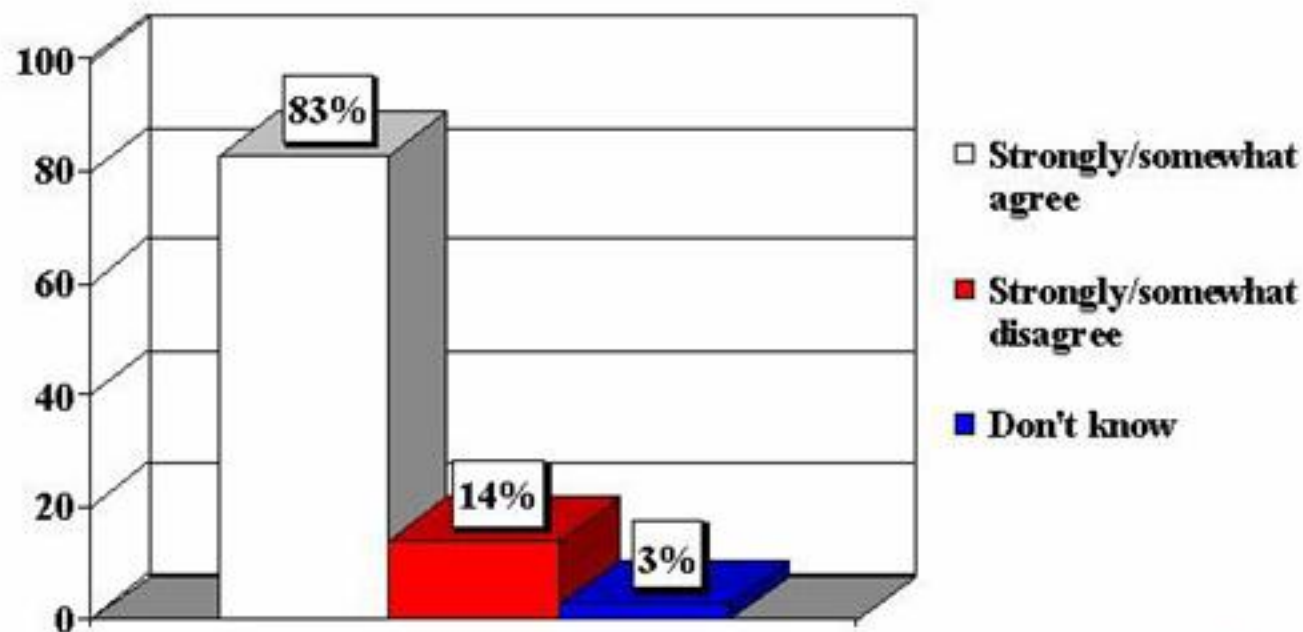




## ➤ Illinois (and U.S.) voters support funding of research

### Illinois Residents Support Basic Research

Even if it brings no immediate benefits, basic science research which advances the frontiers of knowledge is necessary and should be supported by the Federal Government.



Source: Illinois 1999  
Charlton Research Company

*Research! America*  
FOR ALL AMERICANS WHO ARE CURIOUS BY NATURE

# Benefits of University Research

## Benefits to Citizens and the Region:

- New knowledge, from scientific discoveries to works of literature or art.
- Investments in research are highly valued by citizens (*Survey of Illinois Residents*, 1999).
- Enhanced preparation and quality of the workforce via problem-solving experience of graduates.
- **Direct economic impact from new resources and personnel attracted to the region to do research.**  
➤ \$65M in external grants and contracts in FY03--> ~\$120M in economic impact!

# Benefits of University Research

## Benefits to Citizens and the Region:

- New knowledge, from scientific discoveries to works of literature or art.
- Investments in research are highly valued by citizens (*Survey of Illinois Residents, 1999*).
- Enhanced preparation and quality of the workforce via problem-solving experience of graduates.
- Direct economic impact from new resources and personnel attracted to the region to do research.
- **New jobs, spending and taxes generated by new companies derived from university-developed intellectual property.**

# Solving *LUST* problems!



Initial sample collection with a GeoProbe



Two plots 4.5 x 4.5 x 3 m



Breakage and mixing of the excavated clay



***BioInsite*: Bioremediation company at Southern Illinois Research Park based on campus research--->reducing the cost of reclamation of leaking underground storage tank (LUST) sites**

# GLOTELL™



**Theft Deterrent**

**Marking Agent**

**Leak Detector**

IN THE NEWS

## **Pink dye designed to foil makers of methamphetamine**

New York Blade - New York , NY , USA

WICHITA , Kan. (AP) — .....In the two years it took to develop GloTell™, researchers at the University of Southern Illinois Carbondale found it did much more than stain thieves pink. The stain, even if washed off, was still detectable by ultraviolet light 24 to 72 hours later. As a benefit, the additive helped farmers detect any tank leaks, said Truitt Clements, spokesman for Illinois-based GloTell™ Distributors LLC. Best of all, the treated anhydrous ammonia rendered any meth it was used to make difficult to dry and turned it an unbleachable pink, he said.

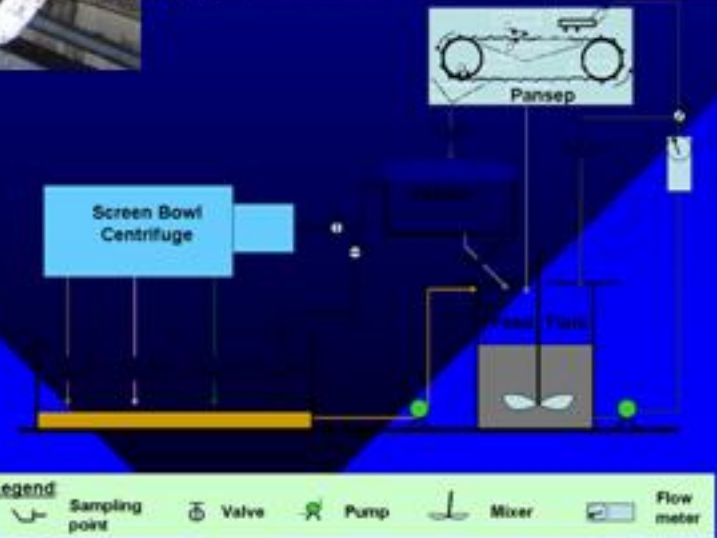
For more information, call **1-866-STOPMETH (786-7638)**

[glotell@roysterclark.com](mailto:glotell@roysterclark.com)

# Integration of New Technologies to Existing Coal Preparation Plants

**Professor Manoj Mohanty is applying state of the art mineral processing to Illinois coal mining. Results demonstrate reduced waste discharge and enhanced coal cleaning.**

**Research at SIUC's unique large-scale laboratories is transferred directly to Knight Hawk Coal Company mine in Jackson County**



**More Competitive Illinois Coal Industry!**

# FutureGen

**A \$1B, 10-year Global Partnership Effort**



**Goal: A US/DoE-led global effort to pioneer coal-to-hydrogen and carbon management technologies for coal**

*SIUC part of team leading efforts to attract FutureGen to Illinois*

*- tremendous job creation and coal revitalization potential*

*- vision for midwest/national leadership in energy production*



**Goal: to be “.... among the top 75 public research universities by the year 2019...”**

**And the recent results and outlook for SIUC are bright.....**





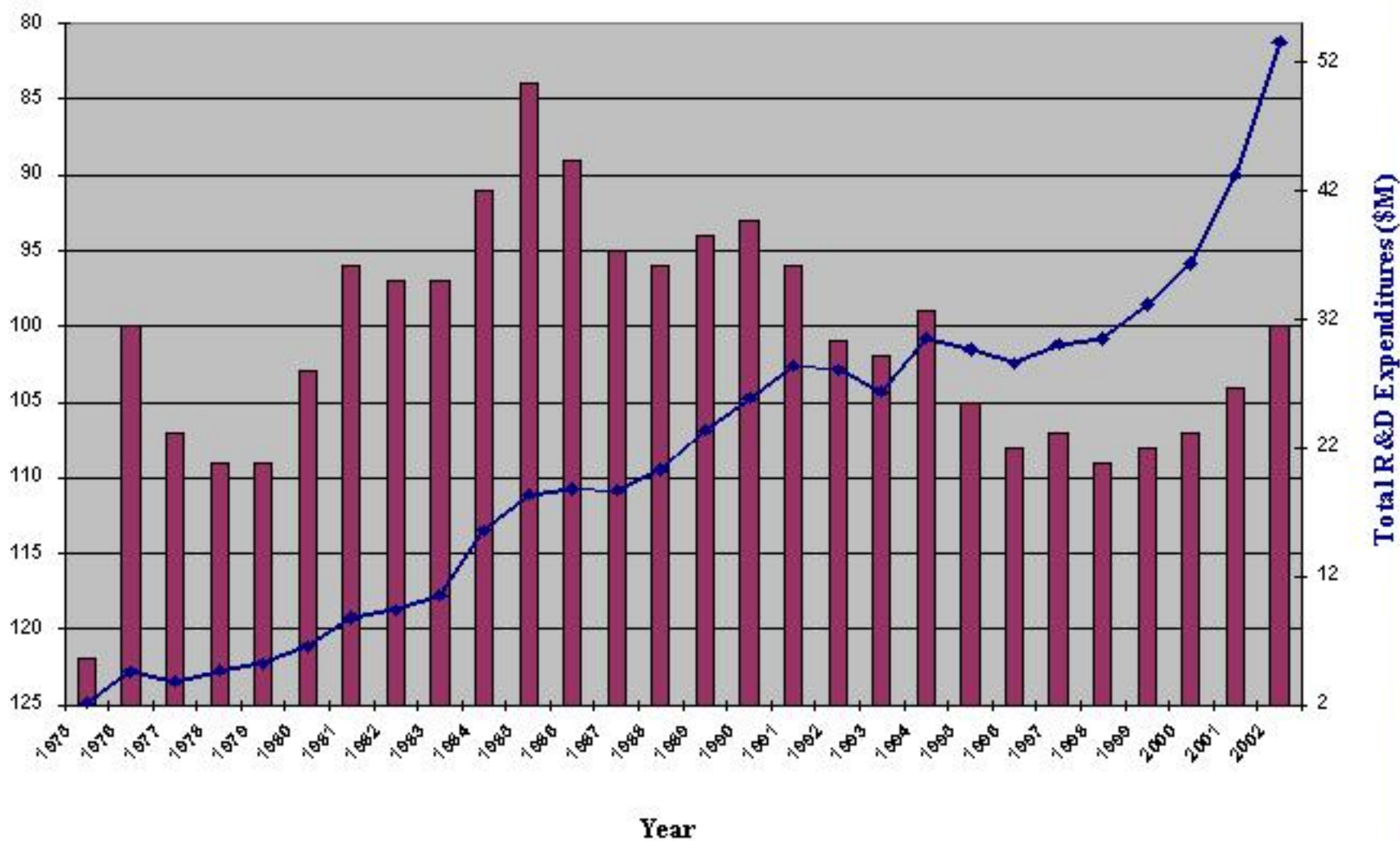
## **In calendar year\* 2003, SIUC faculty:**

- published 957 manuscripts  
75 books, and  
199 book chapters**
- held 290 productions, and  
49 exhibitions**
- made 409 international presentations,  
919 national presentations, &  
573 state presentations**

\* SoM Springfield data are for *Fiscal* Years

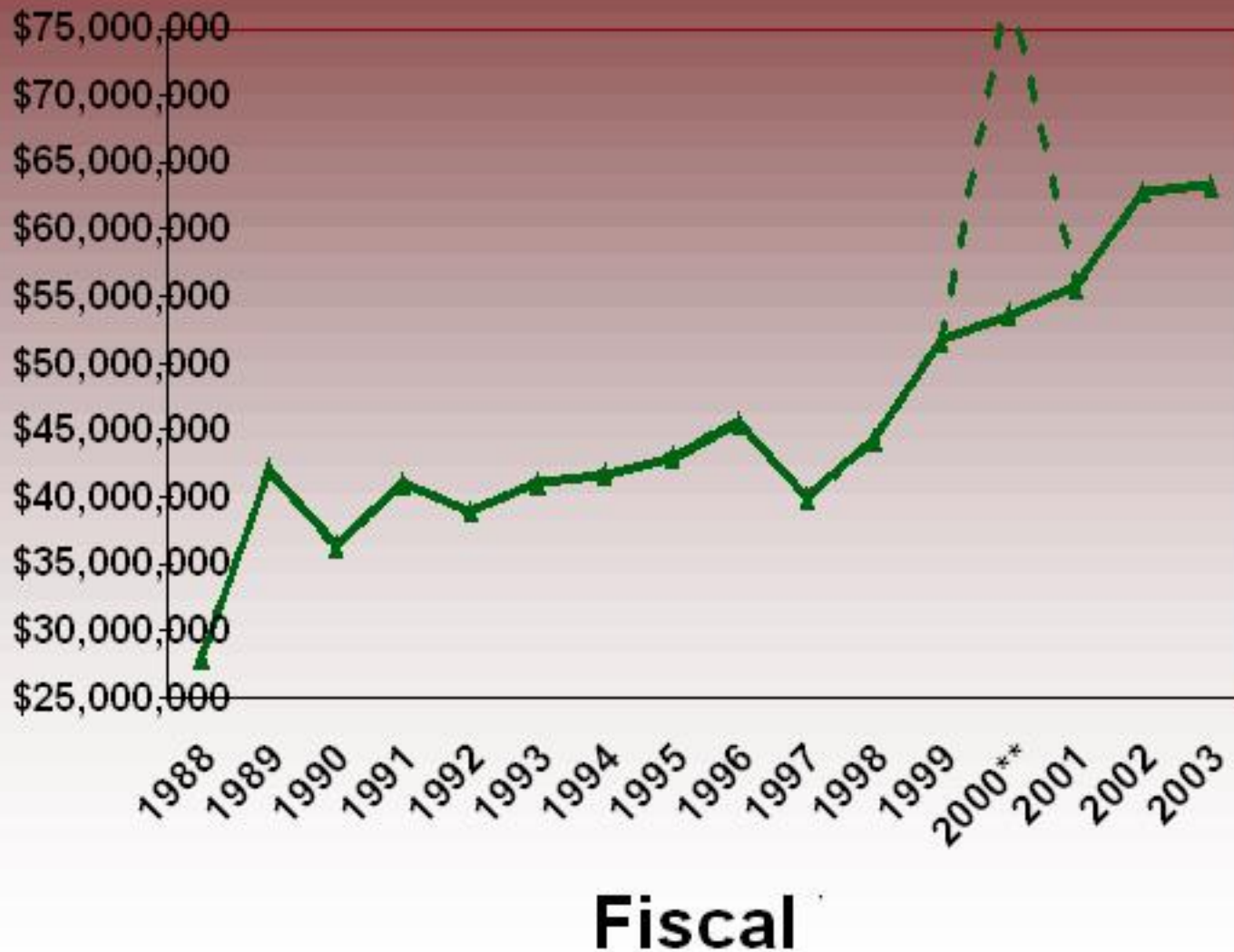
## SIUC Ranking Among Publics: Total R&D

Source: National Science Foundation, Academic Research and Development Expenditures

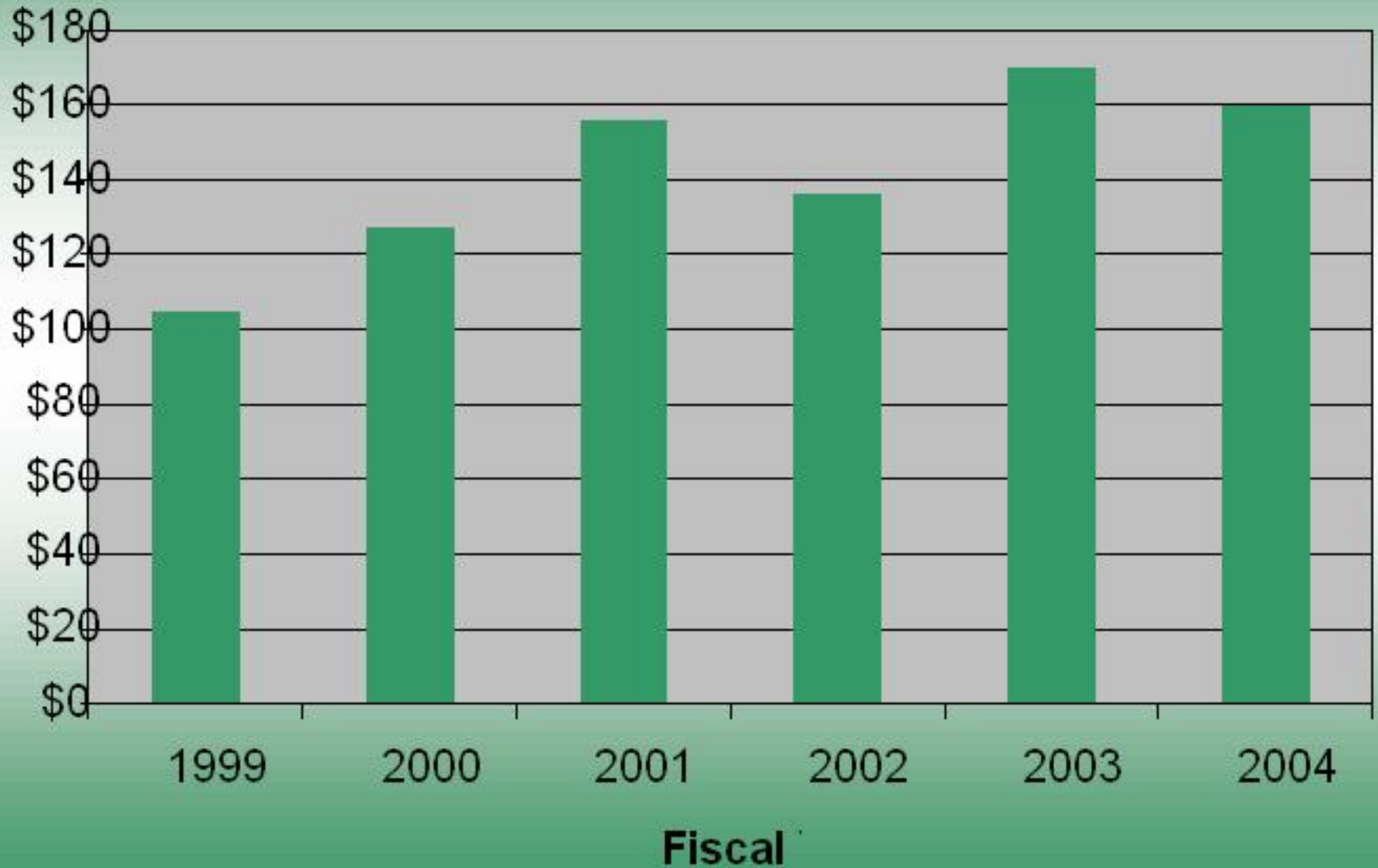


**Most reliable measure of research competitiveness: R&D expenditures**  
**The Top American Research Universities, The Center, June 2000**

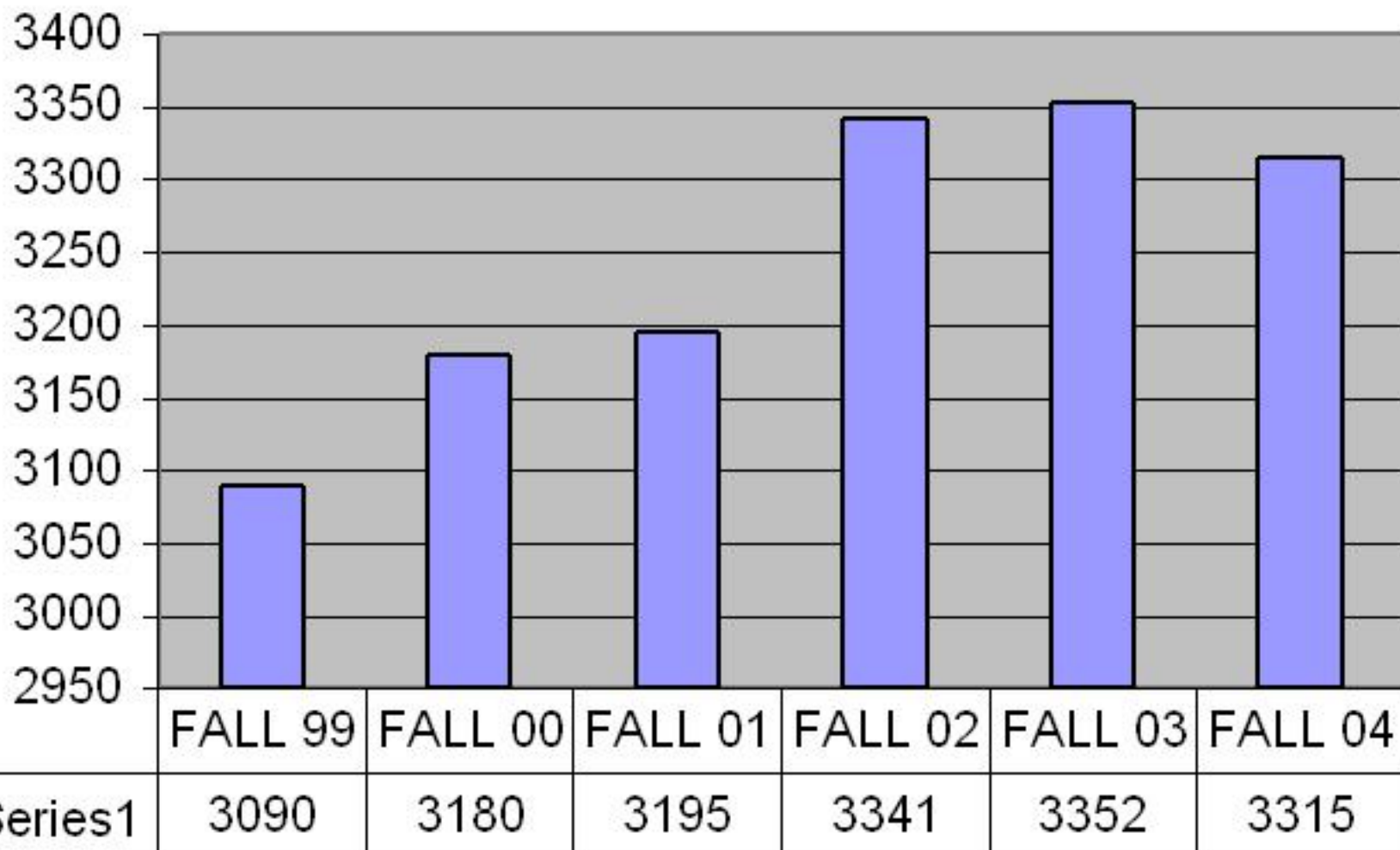
# Total Dollars from External Awards\*:



# Proposal Dollars FY1999-2004



# TOTAL GRADUATE ENROLLMENT



\*not including continuing enrollment (601)

# Here today:

- **Professor Michael Madigan**
- **Matt Sattley, microbiology doctoral student**
- **Professor Reza Habib**
- **Jessica Gerson, psychology graduate student**
- **Professor Allison Joseph**
- **Maggie Shellody, english graduate student**
- **Professor Manoj Mohanty**
- **Steve Carter, President, KnightHawk Coal Co.**
- **+undergrad student research posters in lounge**
- *Grad Highlights, Research Profile, Perspectives*



