

LA-SiGMA

Louisiana Alliance for Simulation-Guided Materials Applications

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THE UNIVERSITY of
NEW ORLEANS



Evaluation Questions

- Who are the Louisiana EPSCoR participants? (LA-SiGMA, Females, URM populations)
- To what extent are project initiatives implemented (fidelity of implementation)?
- What are the short-term and long-term impacts of project initiatives?
 1. How has the multi-scale computational tools developed by LA-SiGMA transformed advances in electronic materials, energy materials, and biomolecular materials?
 2. How has expanded and enhanced computational tools created by LA-SiGMA assisted Louisiana researchers and students?
 3. To what extent have LA-SiGMA researchers established interdisciplinary and interinstitutional collaborations that enhance the work of the project?
 4. To what extent has the project contributed to a diverse and technically trained STEM workforce (pre-college, community college, Historically Black Universities and Colleges)?
 5. How has the project engaged the Louisiana community in outreach and dissemination of efforts?
 6. To what extent have sustainable partnerships with industry and national and international laboratory collaborators been created and expanded?
 7. To what extent has Louisiana EPSCoR been successful in enhancing the competitiveness of Louisiana research enterprises?
- What mechanisms have been put in place to ensure continued availability and accessibility to project initiatives?



Analysis and Data Sources

- **Content analysis:**
 - Project formative and summative reports
 - Observations and data collected in project meetings (PET, annual meeting, Internal Evaluation Team correspondence, etc.)
- **Descriptive and content analysis:**
 - Participant information collected through OASIS
 - LA-SiGMA Project Progress Survey
- **Citation analysis:** Year 1 and 2 publications



Who are the Louisiana EPSCoR participants?

LA-SiGMA programs

	Year 1	Year 2	Year 3*	Gain/loss
LA-SiGMA Faculty	59	64	70	+11
Post-Doctoral Students	7	13	8	+1
Graduate Students	57	71	65	+8
Undergraduate Students	59	74	62	+3
Technical/Non-technical Staff	13	15	16	+3
Total	195	237	221	+26

	Year 1		Year 2		Year 3*	
	Women	URM	Women	URM	Women	URM
LA-SiGMA Faculty	14%	12%	14%	11%	17%	11%
Post-Doctoral Students	14%	0%	15%	8%	25%	13%
Graduate Students	21%	12%	24%	16%	24%	27%
Undergraduate Students	36%	29%	38%	36%	41%	44%
Total	23%	18%	25%	21%	27%	26%

*Year 3 data is based on information obtained from between October 2012 and April 2013.

Bold blue text indicates an increase from Year 2.



To what extent are project initiatives implemented (fidelity of implementation)?

- Most major goals and milestones were met for Year 3.
 - All SD1, SD2, SD3 milestones are complete, ahead of schedule, in progress or on target for Year 3.
 - All CI milestones are on target for Year 3.
 - Most KSD milestones are on target for Year 3 with mitigation plans.
- LA-SiGMA Project Progress Survey Module in OASIS:

Process	Outcomes	Commitment	Efficiency	Effectiveness	Productivity
4.16	4.27	4.38	4.45	4.31	4.18
(0.78)	(0.78)	(0.78)	(0.79)	(0.79)	(0.78)

Scale (1 = strongly disagree to 5 = strongly agree) Mean and (Standard Deviation) shown

*Year 3 data is based on information obtained from between October 2012 and April 2013.

Bold Blue text indicates an increase from Year 2.



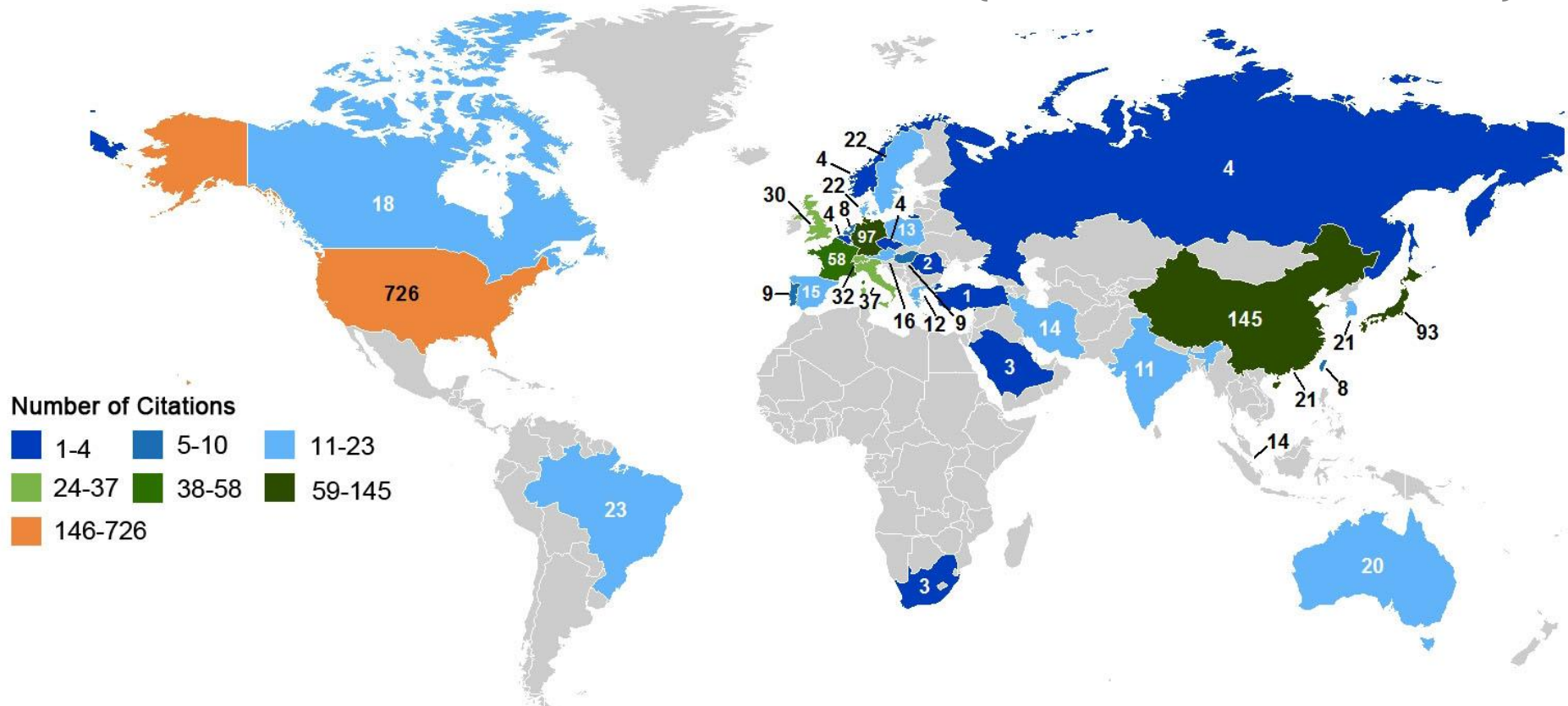
What are the short-term and long-term impacts of project initiatives?

1. How has the multi-scale computational tools developed by LA-SiGMA transformed advances in electronic materials, energy materials, and biomolecular materials?

- More than 2 codes will be ported to National Leadership Class machines by Year 3.
 - 4 researchers ported code
- 4 codes with full documentation will be publically available.
 - 1 code contained full documentation

Location of Authors in World Citing Year 1 (970 authors) and Year 2 (547 authors) LA-SiGMA Publications

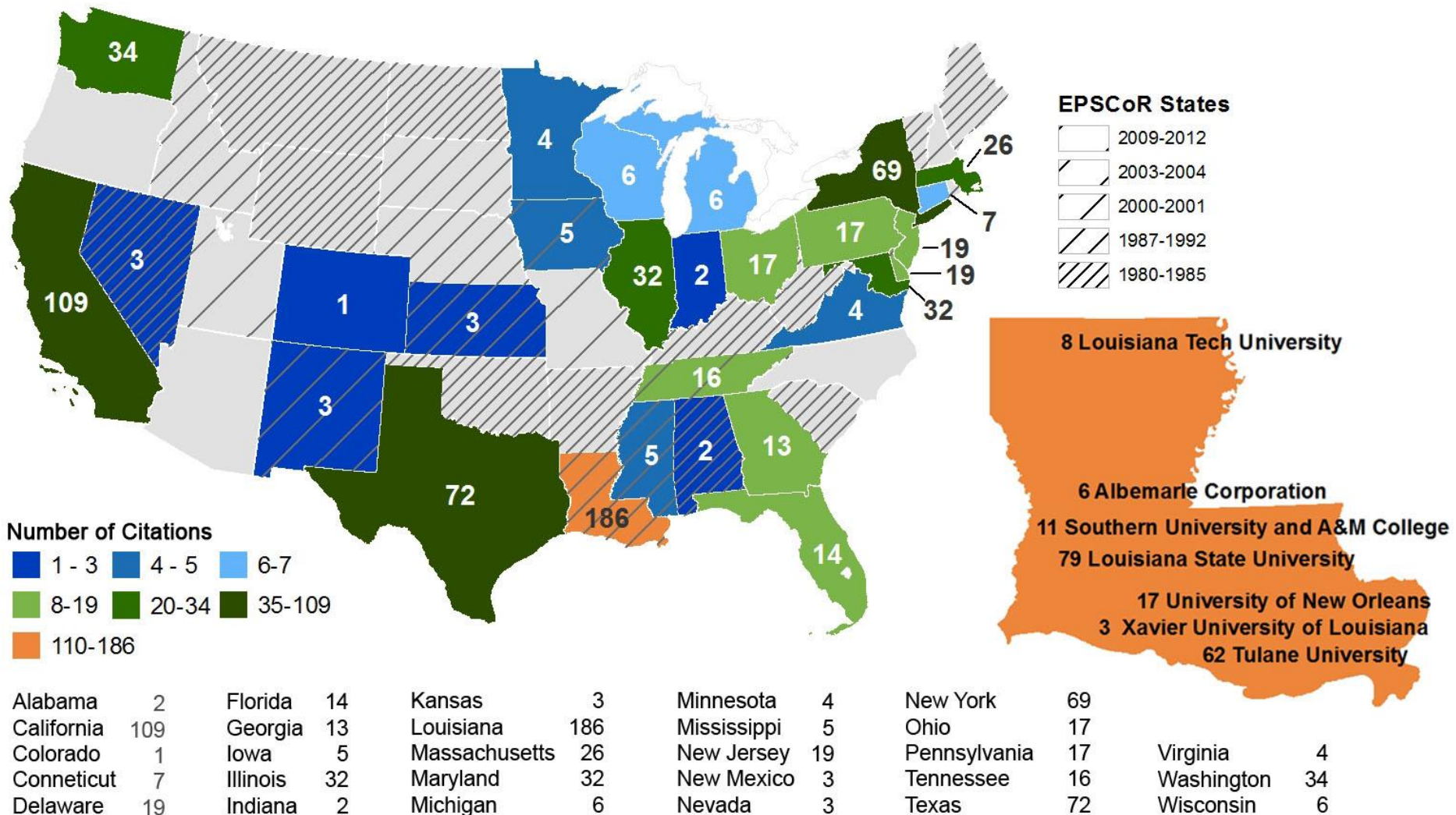
(does not include self citations)



Australia	20	Czech Republic	4	Hungary	9	Norway	4	Singapore	14	Taiwan	8
Austria	16	Denmark	22	India	11	Poland	13	South Africa	3	Turkey	1
Belgium	4	France	58	Iran	14	Portugal	9	South Korea	21	United Kingdom	30
Brazil	23	Germany	97	Italy	37	Romania	2	Spain	15	United States	726
Canada	18	Greece	12	Japan	93	Russia	4	Sweden	22		
China	145	Hong Kong	21	Netherlands	8	Saudia Arabia	3	Switzerland	32		

Location of Authors in US Citing Year 1 (970 authors) and Year 2 (547 authors) LA-SiGMA Publications

(does not include self citations)

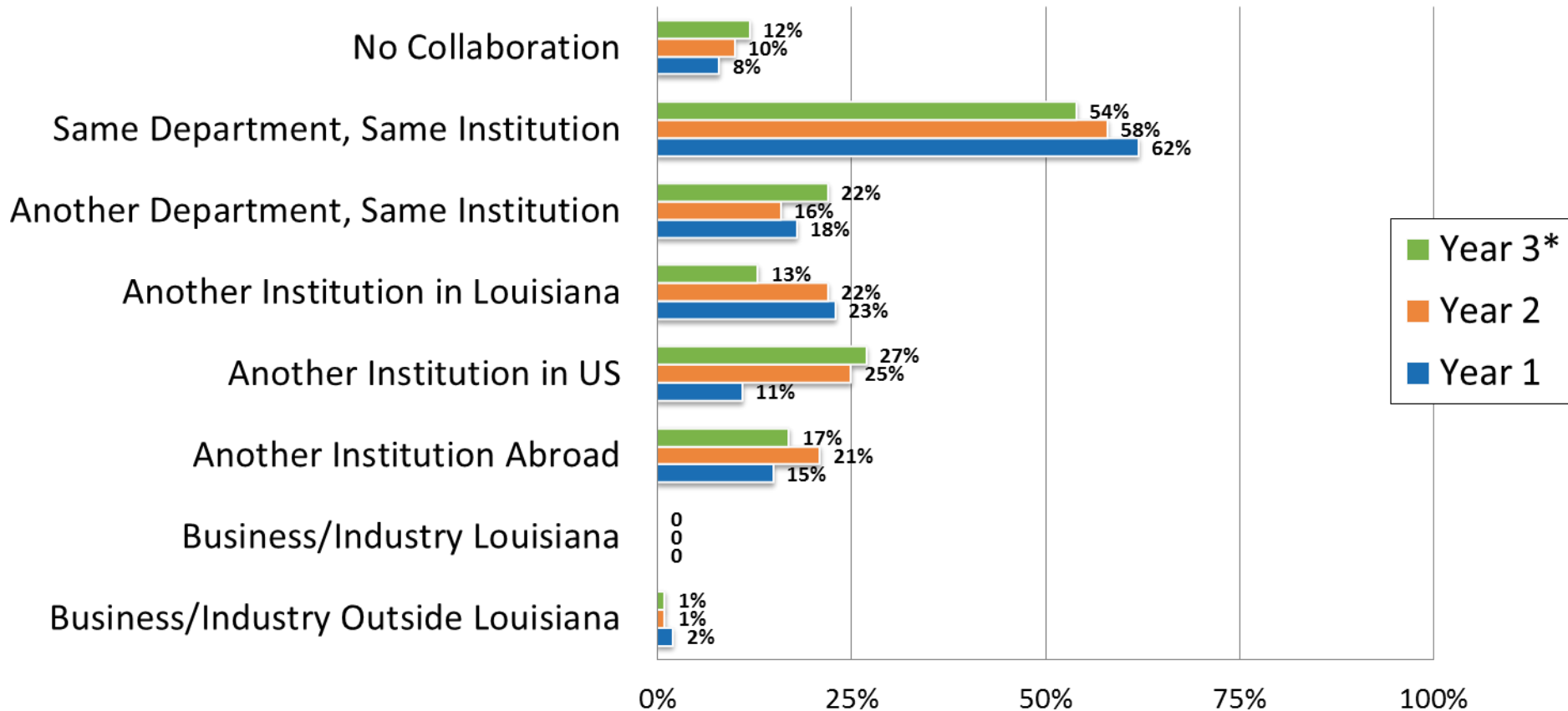


2. How has expanded and enhanced computational tools developed by LA-SiGMA assisted Louisiana researchers and students?

- Year 5 goal is 25% of researchers use cyber tools.
 - Year 3: 59% of researchers use tools.

3. To what extent have LA-SiGMA researchers established interdisciplinary and interinstitutional collaborations that enhance the work of the project?

Percent of Joint Publications



*Year 3 data is based on information obtained from between October 2012 and April 2013.



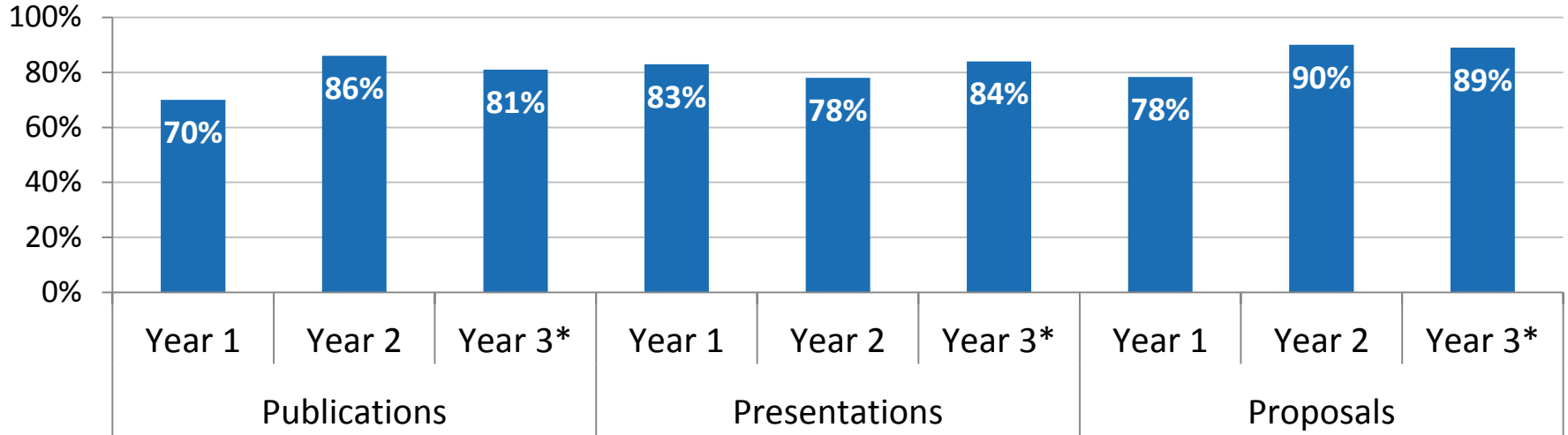
3. To what extent have LA-SiGMA researchers established interdisciplinary and interinstitutional collaborations that enhance the work of the project?

- More than 5 papers or conference presentations resulting from internships each year.
 - Year 3: 1 researcher and 1 student

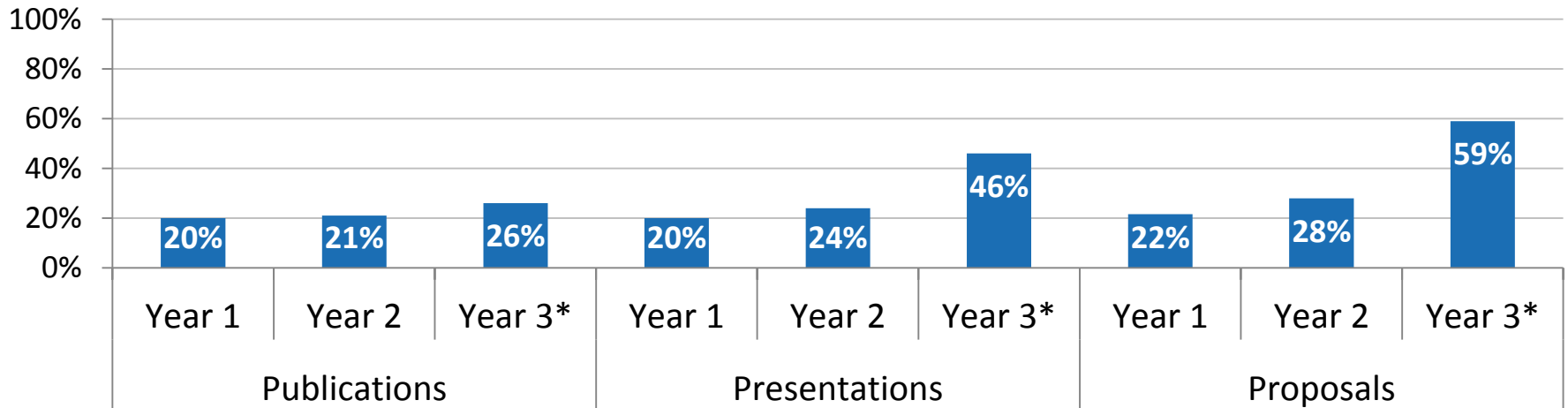
3. To what extent have LA-SiGMA researchers established interdisciplinary and interinstitutional collaborations that enhance the work of the project?

- 10 Collaborative grants each year
 - 10 collaborations with LA institutions
 - 19 faculty from other US institutions
 - 2 included persons from institutions outside US

More than One Discipline



More than one LA-SiGMA team



*Year 3 data is based on information obtained from between October 2012 and April 2013.

4. To what extent has the project contributed to a diverse and technically trained STEM workforce?

- 25% of REU from 2-year colleges enter degree programs at 4-year institutions
 - All REU students plan to enroll in 4-year institutions
- 15% of RET will represent 2-year colleges
 - Year 3: 24%
 - Years 1-3: 18%
- 20 students secure NSF Graduate Fellowships
 - Year 3: 2 students
- 100% 6-year graduation rate of females and URM are being monitored

RSV Recommendation:

How has the project increased and enhanced participation from pre-college, community college, and Historically Black College and University (HBCU) groups?

- Pre-college
 - 700 K-12 participants
- Community College
 - Grant writing workshop yields a proposal
 - Baton Rouge Community College new curriculum for Associates degree
 - Invited talk at LA Community and Technical College Annual Conference to engage Community College students/faculty
- HBCU
 - 3 HBCU contribute to LA-SiGMA research
 - Students participate in REU and SURE
 - URM students from elementary school visit Xavier laboratory



5. How has the project engaged the Louisiana community in outreach and dissemination of efforts?

- LA-SiGMA outreach programs served **1,358 participants**
- **69% of researchers** participated in one or more outreach activities; 39% in Year 2
 - REU, RET mentoring
 - K-12: presentations, summer workshops, open house
- **64% of researchers** have engaged in dissemination efforts for the project; doubling Year 2 participation (32%)
 - Public lectures
 - Lectures to industrial audiences
- Researchers participated in **1-10 activities in Year 3**; average of 2 outreach activities per researcher



RSV Recommendations:

What strategies were effective in strengthening public engagement and what were the outcomes of these strategies?

- 11% of LA-SiGMA researchers participated in Speaking of Science (SoS) programs in Year 3*; 15% in Year 2; no participation in Year 1
- “LA-SiGMA Resource of the Month” distributed to a large mailing list of LA K-12 educators, beginning in January 2013
- LA-SiGMA investigators delivered lectures about their research and/or science & engineering to variety of audiences:
 - Boys and Girls Club
 - Perry Initiative program (Tulane University)
 - UPWARD Bound Program
 - The Sally Ride Festival (LSU)
 - BREC’s Highland Road Observatory

*Year 3 data is based on information obtained from between October 2012 and April 2013.



6. To what extent have sustainable partnerships with industry and national and international laboratory collaborators been created and expanded?

- 10 Industrial grants support research in Materials Science to participating institutions
 - Year 3: 13 OPT-IN awards

RSV Recommendation:

What strategies were effective in increasing collaborations with industry and what were the outcomes of these strategies?

- Louisiana Economic Development (LED) and Battelle presenting their final report to the LA Innovation Council next week – makes several specific references to LA-SiGMA (materials science programs)
- 18 LED program directors heard the LA-SiGMA team make presentations on their research and that has informed them more about LA-SiGMA capabilities as they recruit companies
- SBIR/STTR Zero awards to assist in the development of small business plans
 - 17 Phase 1 and Phase II, totaling \$7,780,000
 - 3 Phase III, totaling \$2,700,000



7. To what extent has Louisiana EPSCoR been successful in enhancing the competitiveness of Louisiana research enterprises?

- IGERT in Materials Science
 - Met Year 1
- LA-SiGMA funding rate at least “US average funding rate of federal proposals” (23%)

	Year 1	Year 2	Year 3*
Awarded	37	59	22
Submitted	79	127	80
Funding Rate	47%	46%	28%

What mechanisms have been put in place to ensure continued availability and accessibility to project initiatives?

- 4 accepted pre-proposals for centers resulting in 2 site visits
 - 2 pre-proposals submitted
- Growth in research competitiveness (funding, knowledge transfer) and interdepartmental/interinstitutional collaborations (LA, US, abroad) builds strong infrastructure



Summary -Next Steps:

- Metrics are in place to measure long-term outcomes
- Work with internal evaluation team:
 - Improve reporting for Research.gov
 - Capture direct use of LA-SiGMA created materials
- Researchers update Year 3 data in OASIS
- As per RSV, PET sets Year 4 evaluation questions based on Year 3 progress

