

## **Sacha Kopp**

### **Summary of Administrative Experience**

My service as Dean of Arts & Sciences at Stony Brook came at a critical juncture in the campus's young 60-year history. I came with the goals of advancing the liberal arts, strengthening the research mission, working with faculty toward a strategic plan, enhancing the diversity of faculty and student body, enhancing student success and graduation rates, and building resources and fiscal sustainability.

In my 4 years as dean, we hired 80 tenure-line faculty across key areas of the arts, humanities, social sciences, and natural sciences, and we increased the diversity of our faculty: while only 32% of the approximately 320 tenured faculty are women, the corresponding number for our assistant professors is 45% of 160. Additionally, 1/3 of recent hires have been from underrepresented groups. We increased the number of full-time instructional positions, leading to a reduction in adjunct-taught courses across the College from 25% to 5% of 3000 courses taught in the College. We created a promotional track (lecturer, senior lecturer, professor of practice) for instructors. We created merit-based pay increases for faculty (in a unionized environment). Knowing that department culture and climate are important to success, we instituted coaching services for faculty and chairs. Recognizing the need to better support faculty research, we created a regular budget for individual and departmental scholarly, research, and artistic initiatives; we initiated key renovations of labs, recital halls, and art studios. We created a grants support staff for the College. Annual sponsored research increased from \$36M/yr to \$46M/yr, and in addition the College was awarded two \$10M Department of Energy Frontier Research Centers. It is gratifying to note that in this time U.S. News & World Report's ranking for Stony Brook climbed from #97 to #80, its highest level ever, and several of our graduate programs rose as well.

I created a College-wide strategic planning process that identified programs of excellence, areas critical to student success, and budgeting that aligns with the University Strategic Plan. Knowing the importance of shared governance, faculty were engaged throughout. We articulated the values of the College to be the liberal arts core at a public research university; we defined measurable objectives that assess our programs' alignment with and contributions to the goals; we instituted a self-study process whereby departments could assess their excellence in teaching, research, and public impact and assess resources required for success. After years of stagnant investment in programs across the College, we increased investment (faculty lines, TA positions, etc) in several departments in the arts, humanities, social- and natural-sciences (most notably, Music, Art, English, Women's and Gender Studies, Political Science, History, Economics, Anthropology, as well as several STEM fields biochemistry, physics, geosciences, chemistry). A strategically-aligned \$90M budget was delivered to the Provost. With many strong programs and student success an imperative, resource allocation must be intentional and transparent.

Recognizing the value of a liberal arts education, we created a BA in Biology requiring a minor in a liberal arts discipline, as featured in Long Island Business News. We initiated a strong push for undergraduate recruiting, partnering with local schools and our Admissions Office, leading to 70% growth in freshman with declared majors in the arts, humanities, and social sciences (now totaling 450 out of 1700 students). Recognizing the value of original research or creative artistry, we oversaw implementation of the first-ever experiential learning requirement in students' degree plans. We implemented a new general education curriculum, and created a first-ever College-wide curriculum delivery planning process to ensure students had timely access to courses required for their degrees. We hosted author Naomi Wolf as Visiting Professor to enlarge the scope of our Humanities Institute in public communications, as featured in the Chronicle of Higher Education. We created the Center for Social Justice, Inequalities, and Policy to foster interdisciplinary work in the social sciences and humanities, building connections with other colleges across the University, as well as with regional labor, civic, and religious organizations committed to work in social justice.

Proud of its AAU status, Stony Brook serves high needs students (over 50% from the lowest socioeconomic quintile, 40% 1st-generation in college), and we are deeply committed to expanding affordable access to college. We initiated a strong push for undergraduate recruiting, leading to 30%

growth in African-American and Latino/a students in the freshman class (now totaling over 200 and 300 freshmen, respectively); and a 50% growth of women in STEM disciplines (now 500 of 900 STEM freshmen). These gains were achieved after many discussions with a student advisory council formed by my office about the aspirations felt and barriers experienced by students that allowed us to make tangible changes toward an inclusive environment on campus. Recognizing the central role of the College to the success of students across campus, I served as the sole college dean on the President's Council on Diversity and Inclusion; programs developed in our College served as the model for the campus-wide diversity plan. Finally, knowing the low rates of college participation in some local high schools, we created the Pre-College Institute, a free 1-week residential opportunity for high school students from high-needs districts, featured in the Chronicle of Higher Education. Today, the graduation rate of students at Stony Brook University is 67%, and most significantly is the same for all groups, irrespective of ethnicity and family income (there is no gap for students of color or from low-income families). A longitudinal study by Stanford University's Institute for Economic Policy Research ranks Stony Brook University amongst the top universities in the U.S. in promoting socioeconomic mobility.

My service as dean coincided with financial challenges encountered by the College, Stony Brook, and SUNY generally. I arrived to a 7% (\$6M) operating deficit for the College, and managed the College through an additional 6% (\$5M) in state-mandated budget reductions. These challenges came at the same time new legislative caps kept SUNY tuition flat. Recognizing the importance of shared governance, I worked closely with departmental leadership, University Senate, and fellow administrators. The University Senate stated that my consultative style was a model for other deans on campus. Recognizing the need to build additional revenues, I worked with the departments to increase revenues from online tuition-generating programs by 300% to \$6M/yr and federally-sponsored research from \$36M/yr to \$46M/yr. Following external review and metrics-driven evaluation of our programs, we closed undergraduate curricular areas that were under-enrolled and two graduate degree programs with poor outcomes. We reevaluated administrative staffing across the College, downsizing some areas (including the Office of the Dean) and in other cases adding technical or support staff. These measures permitted *increased* investment in numerous key programs despite overall cuts to the base budget and led to a balanced budget within 3 years of my arrival, the first for the College in nearly a decade.

I led a capital campaign for the College of Arts and Sciences as part of the University's \$600M campaign. Working closely with the VP for Advancement, I built a 6-member advancement and communications team that more than doubled the endowments of the College. With over \$90M raised, our team exceeded the \$60M goal for the College, the only academic college to exceed its goal. Building these endowments has strengthened the College's ability to foster a comprehensive, liberal arts, intellectual environment. In this campaign, the number of endowed professorships in the College increased from 1 to 9, with new additions in Hellenic Studies, Philosophy, History, Art, Tamil Language, Physics, Chemistry, and Anthropology. Two endowed visiting artist positions were funded, one in music performance and one in studio art, building on our significant strength in the arts. We completed endowments for research centers in Hellenic Studies, India Studies, and Nuclear Science. We greatly increased scholarships for students, focusing on experiential learning and enhancing the diversity of the student body; this is central to our mission, given our proud history as a research institution serving a majority of students from the lowest socioeconomic quintile in the U.S.

Through the period of my service as dean, we advanced programs of academic excellence and critical to student success, growing strong programs spanning the arts, social sciences, humanities, and sciences. Through one of the more challenging financial periods of the University's history, I worked closely with faculty, the Provost, fellow deans, the University Senate, and the President to ensure the College's critical contributions to the University mission were enhanced, graduate and undergraduate students were served, and the resource base enhanced through entrepreneurship and philanthropy.

As Associate Dean at the University of Texas, my portfolio included both student affairs and academic programs. I oversaw the college's the \$11M student services budget, \$22M instructional budget, and supervised a student affairs staff of 130. Today, thanks to faculty leadership and active partnerships

with the departments, as well as a dedicated dean's office staff, the 4-year graduation rate for the College is 75%, higher than the university average of 69%, higher than the College's prior rate of 50%, and most significantly reflecting the greatest gains from students from diverse backgrounds.

In academic programs, my position as associate dean included leading college-wide faculty committees on curriculum, student advising, faculty instructional workload policies, and sitting on committees for promotion and tenure, and space resource allocation. Among my significant accomplishments are creating an interdisciplinary Bachelor of Science and Arts degree to augment our Bachelor of Science offerings – an effort that required collaboration among all colleges at UT. Another significant accomplishment was working with our faculty toward adoption of instructional technology and the implementation of “flipped classroom” pedagogy – work that decreased rates of non-passing grades in gateway courses by a factor of two and led the campus to a greater level of engagement in instructional technology and pedagogy. Additionally, the dean asked me to lead an interdisciplinary faculty team from three colleges to create an inquiry-based curriculum to teach science to current and future elementary school teachers – now a part of the UTeach curriculum at UT. I assisted the Dean with her annual budget preparations with the Provost's office, and as part of her senior leadership team of three associate deans, played a central role in a strategic planning process for the College that guided program development and resource allocation.

My work as associate dean included oversight of student affairs, experiential learning, and student leadership development for the College. I expanded the Freshman Research Initiative, which awards students course credit for research participation and awards faculty teaching credit and postdoc support in exchange for hosting cohorts of 20-30 students in large-scale original research; this program dramatically enhanced first year retention, the rates of students completing their degrees, internship partnerships with local industry, and the pursuit of advanced degrees by our students, particularly for students from underrepresented minorities. The FRI program was highlighted by President Obama's Council of Advisors on Science and Technology. As part of this program, I developed a freshman course “Originality in the Arts and Sciences” that developed skills of inquiry and critical thinking and co-taught this course with colleagues in the humanities and social sciences. Believing strongly in the value of global engagement and international experiences, we expanded study abroad opportunities through a faculty-driven process of identifying partner universities worldwide with compatible curricula. We expanded the TIP program that supports underrepresented and high needs students. My office oversaw co-curricular activities, student government, over 100 student clubs, and connections with the residence halls. I served as the Faculty Advisor for the Natural Sciences Council, the student government of the College, and worked with their leadership to engage students in college-wide assessments of student satisfaction and climate on campus. We created a counseling and mental health office, coordinated with similar offices across the university. We created an onboarding program, CNS101, that grouped entering students in small seminars of 20 in their first year and supported them in their individual and academic development; this program integrated professional and faculty advisors, peer advisors, and the student cohort with our offices in academic advising, career advising, counseling, student organizations and co-curricular activities, and residence hall life. Our experience was that integration of academics and student development created a distinctive pride of place within the state and public higher education. Our experience also highlighted the great importance of supporting the “whole student,” not just focusing on academic factors, in seeking gains in student success and achievement.

As Associate Dean, my focus included expanding and improving relationships with alumni and families. In recognition of my work to support students and better connect alumni with the university, the Precursors – the group of African American alumni who were the first to integrate the university in the 1950s and 1960s – honored me with a community partner award. I worked closely with our Director of External Relations to encourage philanthropy for our programs, and to maintain relationships with members of the Dean's Advisory Council, a group of benefactors, friends of the university, and alumni.

## Biographical Sketch: Sacha Elmer Kopp

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### Professional Preparation:

- The University of Chicago,      Physics      Ph.D., August 1994
- The University of Chicago,      Physics      S.M., June 1992
- The University of Chicago,      Physics      A.B., *with Honors*, June 1990

### Professional Appointments:

- 2018 – present      Provost’s Fellow for STEM Education  
State University of New York at Stony Brook
- 2014 – 2018      Dean, College of Arts and Sciences  
State University of New York at Stony Brook
- 2014 – present      Professor, Department of Physics  
State University of New York at Stony Brook
- 2010 – 2014      Associate Dean for Undergraduate Education,  
College of Natural Sciences  
University of Texas at Austin
- 2012 – 2014      Professor, Department of Physics  
University of Texas
- 2008 – 2010      Associate Chair for Undergraduate Affairs,  
Department of Physics  
University of Texas
- 2006 – 2012      Associate Professor, Department of Physics  
University of Texas
- 2000 – 2006      Assistant Professor, Department of Physics  
University of Texas
- 1998 – 1999      Visiting Assistant Professor, Department of Physics  
Syracuse University
- 1995 – 1998      Postdoctoral Fellow, Department of Physics  
Syracuse University
- 1990 – 1994      GAAN Fellow, Department of Physics  
University of Chicago

## Dean, College of Arts and Sciences, Stony Brook University (2014-2018)

Responsible for largest college of the university, 10,000 undergraduates, 2,000 graduate students, 470 tenure-line and 130 instructional faculty, 27 departments, 200 staff, \$90M budget, \$50M sponsored research.

- Strategic Planning
  - Led faculty through two-year Strategic Plan process, aligned to University Strategic Plan
  - Created data-driven process to assess department/program alignment with College Strategic Plan
  - Created Center for Study of Social Justice, Inequalities, and Policy
  - Created interdisciplinary Department of Women's, Gender, and Sexuality Studies
  - Funded [Algonquin Language Reclamation Project](#) and faculty growth in Turkana Basin Institute
  - Spearheaded plans for art studios, music recital hall, and cross-college genomics core facility
- Faculty Development
  - Hired 80 faculty in diverse areas of program excellence, strategic priority, and student need, and increased representation of women and faculty from underrepresented groups.
  - Created promotional track for contract instructors: lecturer, senior lecturer, professor of practice
  - Increased number of full-time faculty; adjunct-taught courses decreased from 25% to 3%
  - Created faculty workload-policy and faculty contact-hour policy
  - Created merit-based pay raise system for departments within unionized framework
  - Created College Teaching Excellence Award, student-nominated and student-elected
  - Expanded mission of Humanities Institute to scholarship, education, and [public communication, partnering with Naomi Wolf](#), as highlighted in the *Chronicle of Higher Education*
- Undergraduate Education
  - Created BA in Int'l Relations & Global Studies and [BA in Biology, requiring non-STEM minor](#)
  - Created student advisory council to assess student needs and concerns
  - Created weekly "advice from the dean" message to the student body
  - Implemented new general education requirements and College-level course planning process
  - Closed degree plans in Pharmacology, Cultural Studies, Comparative Literature, and Theater
  - Initiated freshman recruiting, result: 50% increase in humanities, arts, and social science majors as well as 30% increase in Hispanic and Latino/a and African-American students
  - Created [Pre-College Institute](#), a free week-long residential summer program for high school students from high needs districts on Long Island, highlighted in *Chronicle of Higher Ed.*
- Graduate Education
  - Created Master of Arts degrees in Computational Linguistics and in Asian Studies
  - Closed graduate plans in Cultural Studies, Comparative Literature, and Theater
  - Created PhD degree in Women's, Gender, and Sexuality Studies
  - Increased stipends for and number of graduate teaching assistant positions in humanities
- Advancement
  - Created advancement/communications team for CAS in collaboration with VP-Advancement
  - Achieved \$60M campaign goal; increased annual giving from \$3M/year to \$9M/year
  - Completed campaigns for research centers, including Center for Hellenic Studies (\$2M gift); Center for Nuclear Science (\$5M gift); completed \$5M endowment for Center for India Studies
  - Increased endowed professorships from 1 to 9, adding chairs in Hellenic Studies, Philosophy, History, Art, Physics, Chemistry, Anthropology, Tamil; added 2 endowed vis. artists (art, music)
- Fiscal management and revenues
  - Inherited \$6M/year operating deficit in \$90M/year budget, and additionally encountered \$5M unfunded union contractually-obligated salary increases, necessitating \$11M budget correction.
  - Instituted budgeting process aligned with objectives of the College Strategic Plan
  - Increased intercession-based tuition revenues from \$4M to \$6M through online courses
  - Added grant-writing support staff, increased sponsored research from \$36M/yr to \$46M/yr
  - Two Department of Energy EFRC grants, each \$10M

## **Associate Dean, College of Natural Sciences, University of Texas (2010-2014)**

Responsible for undergraduate education for 11,000 students in the College of Natural Sciences, the largest of the 14 colleges at UT Austin. Supervise staff of 130 for Dean's Office Student Division.

- **Courses, Curricula, and Degree Programs**
  - Led faculty through creation of Bachelor of Science and Arts (BSA) degree allowing for complementary study of science along with business, communications, liberal arts, or fine arts.
  - Created interdisciplinary degrees in health information technology, neuroscience, public health.
- **College Readiness and Onboarding – reduce rates of non-passing grades by factor of 2**
  - Oversaw pre-matriculation placement testing in math and chemistry for freshmen
  - Created online remediation curricula and peer mentoring for students in placement process
  - Initiated CS/Math/Chem/Bio summer pre-matriculation camps
  - Oversaw summer orientation programs for new students
- **Student Success Programs**
  - Oversaw and tripled capacity for programs that raise graduation rates 64% for at-risk students
  - Expanded peer mentoring program to employ over 800 student mentors annually
  - College's 4 yr grad rates grew to 75% (*cf* 50%), exceeding UT average of 69%
- **Admissions**
  - Increased diversity and success rates of freshman class (probations down by factor of two)
  - Created faculty review process for admissions to the college
- **Academic Advising and Mentoring**
  - Oversaw college's 35 professional academic advisors
  - Created CNS101, placing all freshmen in small cohorts with faculty and peer mentors, following pilot programs that showed 30% increase in 4yr graduation rates.
- **Career Services and Pre-Health Advising**
  - Oversaw office of 12 career and pre-health advisors
  - Initiated ties with Austin Chamber of Commerce, BioTech Austin, and UT Alumni
  - Served as director of Joint Admissions to Medical Program for under-privileged students
  - Created "Careers101" curriculum for sophomore students
  - Created alumni-student networking events and individual mentor matching service
- **Undergraduate Research and International Study**
  - Oversaw Freshmen Research Initiative, serving 850 freshmen annually in faculty-led research
  - Oversee year-end undergraduate research forum for all students in the college
  - Created faculty-driven partner university program for study abroad at 80 universities
- **Honors Programs**
  - Created Health Science Scholars and Polymathic Scholars honors programs
  - Awards: 6 successful Goldwaters, 12 NSF fellows, and a Truman and a Marshall scholar
  - Oversee honors recognition events, banquets, awards
  - Created dedicated Honors Office for the College
- **Student Dean for the College**
  - Faculty advisor for the Natural Sciences Council of Student Government
  - Oversaw 100 student organizations and student life in the college
  - Created weekly blog & email ("Kopp's weekly") read by 11,000 students in the college
  - Created student advisory council for under-represented minorities.
  - Created counseling office for the College
  - Created peer liaison program and faculty liaison program with residence halls
- **Teaching Pedagogy and Innovation Support**
  - Led faculty professional development in hybrid, technology-enhanced "flipped classrooms"
  - Oversaw college development of QUEST web-based platform for curriculum and assessment
  - Developed innovative 'studio style' classrooms for interactive inquiry-based pedagogies

- Commencement Ceremonies for the College of Natural Sciences
- Instructional Budget Management
  - Developed course priority structure for \$22M/yr instructional budget
  - Reduced cost of instruction by \$2M annually

### **Associate Chair, Department of Physics, University of Texas (2008-2010)**

Responsible for undergraduate education for Department of Physics.

- Initiated a doubling of the number of physics majors from 220 in 2008 to 470 in 2012
- Conducted focus group research of issues related to student success, retention, and satisfaction
- Created marketing campaign to recruit students to the major
- Initiated undergraduate teaching assistant program
- Initiated Physics Department Open House for all students at UT Austin to tour research labs
- Organized science concerts, popular lectures, student/faculty lunches, and movie nights
- Chair of Physics Department Undergraduate Studies Committee
- Department representative on College honors, faculty advisors, and curriculum committees
- Created UTeach Primary program – extension of UTeach program for education majors certifying in K-6 grades. Created 4 interdisciplinary semester-long courses in hands-on learning of science (spans topics of chemistry, physics, biology, geology, astronomy) – collaborated with George Nelson (Western Washington) and Fred Goldberg (San Diego).

### **External Research Activities:**

My scholarly work focused on the physics of elementary particles. It involved participating in and leading multi-university, international collaborative teams that studied the basic building blocks of matter and the forces that govern their behavior. My work was conducted at particle accelerators at Fermilab (Chicago), Cornell (Ithaca), and CERN (Geneva). My graduate work included study of the particle responsible for the weak nuclear force and participation in an experiment that discovered the top quark, one of the 12 basic building blocks of all matter. My postdoctoral fellowship included a lead role in the design and construction of an instrument at the Cornell accelerator, used by over 400 scientists in the study of “bottom quarks” and “charm quarks.” My later work included project management roles in the construction and operation of a \$130M particle beam facility which we used to demonstrate that the neutrino has mass and contributes to the gravitational matter in the universe. Most recently, I became interested in STEM education, and worked with cross-departmental teams studying inquiry-based instruction on the self-efficacy of K-6 teachers in teaching science, and I led a cross-departmental team on the impact of flipped classroom pedagogical techniques in student outcomes and retention.

- Neutrino scattering cross sections at the MINERvA experiment, Fermilab (2007 – 2012)
- Neutrino oscillation studies at the MINOS experiment, Fermilab (2000 – 2012)
- Accelerator R&D at Fermilab and CERN
  - Synchronization of the 8 GeV Booster and 120 GeV Main Injector accelerators
  - Secondary Emission Monitors for the Main Injector and 400 MeV transfer lines.
  - Development of an AC Dipole for the Fermilab Tevatron and CERN LHC
  - Tomographic imaging of particle beams in the Fermilab Main Injector
  - Study of linear and non-linear optics using ramped correctors in the Fermilab and CERN Boosters
- CLEO-III Ring-Imaging Čerenkov detector, Cornell Electron Synchrotron Ring (1995 – 1999)
- The Collider Detector at Fermilab: Proton-Antiproton Collisions at 1800 GeV (1987 – 1995)

## Refereed Publications

Citation summary results	Citeable papers	Published only
Total number of citable papers analyzed:	345	291
Total number of citations:	29,870	27,720
Average citations per paper:	86.6	95.3
<b>Breakdown of papers by citations:</b>		
Renowned papers (500+)	8	7
Famous papers (250-499)	9	8
Very well-known papers (100-249)	65	61
Well-known papers (50-99)	63	60
Known papers (10-49)	141	133
Less known papers (1-9)	46	20
Unknown papers (0)	13	2
Additional Citation Metrics		
h index	90	88

### Selected publications as PI:

1. "Do Inquiring Minds have Positive Attitudes? The Science Education of Preservice Elementary Teachers," C.Riegler-Crumb, K.Morton, C.Moore, A.Chimonidou, C.Labrake, S.Kopp, *Sci.Educ.* 2015 Sep; 99(5): 819-836
2. "Accelerator Neutrino Beams," S. Kopp, invited review article, *Phys. Rept.* **439**: 101 (2007).
3. "Properties of the  $W$  Boson from the Fermilab Tevatron," S. Kopp, invited review article, *International Journal of Modern Physics A* **10**, 4413 (1995).
4. "Secondary Beam Monitors System for the NuMI Facility at FNAL," S. Kopp *et al.*, *Nucl. Instr. Meth.* **A568**:503-519,2006
5. "Parametrization of the driven betatron oscillation," R.Miyamoto, S. Kopp, A. Jansson, M. Syphers, *Phys. Rev. ST Accel. Beams* **11**:084002 (2008)
6. "Beam-Based Alignment of the NuMI Target Station Components at FNAL," R.Zwaska *et al*, *Nucl. Instr. Meth.* **A568**:548-560,2006
7. "The Hadron Hose: Continuous Toroidal Focusing for Conventional Neutrino Beams," J. Hylen *et al.*, *Nucl. Instr. and Meth.* **A498** pp 29-51 (2003).
8. "Construction, Pattern Recognition, and Performance of the CLEO III LiF-TEA RICH Detector," *Nucl. Instr. and Meth.* **A502**, 91 (2003)
9. "Undergraduate Peer Assistants in a Large Lecture Course," S. Kopp, *J. Phys. Ed* **35**(6), 423 (2000).
10. "CLEO-III Ring Imaging Cherenkov Detector," M.Artuso *et al*, *Nucl. Instr. Meth.* **A461**, 545(2001)
11. "Beam Tests of the CLEO-III RICH," M. Artuso *et al.*, *Nucl. Instr. Meth.* **A441**, 374 (2000).
12. "The CLEO-III Detector," S. Kopp, *Nucl. Instr. Meth.* **A384**, 61 (1996)

### Selected publications with P. Adamson *et al* (MINOS Collaboration):

13. "Measurement of the neutrino mass splitting and flavor mixing by MINOS," sub. to *Phys.Rev.Lett.*
14. "Search for sterile neutrino mixing," *Phys.Rev.***D81**:052004 (2010)
15. "Search for muon-neutrino to electron-neutrino transitions," *Phys.Rev.Lett.***103**:261802, 2009
16. "First Measurement of  $\nu_{\mu}$  and  $\nu_e$  Events in an Off-Axis Horn-Focused Neutrino Beam," *Phys. Rev. Lett.* **102**:211801, 2009

17. "Search for active neutrino disappearance using neutral-current interactions," Phys. Rev. Lett. **101**:221804,2008
18. "Measurement of Neutrino Oscillations with the MINOS Detectors in the NuMI Beam," Phys.Rev.Lett.**101**:131802, 2008
19. "A Study of Muon Neutrino Disappearance Using the Fermilab Main Injector Neutrino Beam," Phys.Rev.**D77**:072002, 2008
20. "Observation of muon neutrino disappearance with the MINOS detectors and the NuMI neutrino beam," Phys.Rev.Lett.**97**:191801, 2006

Selected publications with M.S. Alam *et al* (CLEO Collaboration):

21. "Branching Fraction and Photon Energy Spectrum for  $b \rightarrow s\gamma$ " Phys.Rev.Lett. **87** 251807 (2001).
22. "Study of  $B \rightarrow \psi(2S)K$  and  $B \rightarrow \psi(2S)K(892)$  Decays," Phys. Rev. **D63**:031103 (2001)
23. "Study of Exclusive Two-Body  $B^0$  Meson Decays to Charmonium," Phys. Rev. **D62**:051101(2000)
24. "Search for CP Violation in  $B \rightarrow \psi K^+$  and  $B \rightarrow \psi(2S)K^+$  Decays," Phys. Rev. Lett. **84**:5940 (2000).
25. "Measurement of the  $B^0$  and  $B^+$  Masses," Phys. Rev. **D61**:11101 (2000).
26. "First Observation of the Decay  $B \rightarrow \psi\phi K$ ," Phys. Rev. Lett. **84**:1393 (2000).

Selected publications with F. Abe *et al* (CDF Collaboration):

27. "The  $e\tau$  and  $\mu\tau$  Decays of Top Quark Pairs Produced in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1800$  GeV," Phys. Rev. Lett. **79**, 3585 (1997)
28. "Search for New Gauge Bosons Decaying into Dileptons in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1800$  GeV," Phys. Rev. Lett. **79**, 2192 (1997)
29. "Measurements of  $\sigma B(W \rightarrow e\nu)$  and  $\sigma B(Z^0 \rightarrow e^+e^-)$  in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1800$  GeV," Phys. Rev. Lett. **76**, 3070 (1996).
30. "Search for New Charged Bosons Heavier than the  $W$  in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1800$  GeV, Phys. Rev. Lett. **74**, 2900 (1995).
31. "Observation of  $t\bar{t}$  Production in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1.800$  GeV," Phys. Rev. Lett. **74**, 2626 (1995).
32. "A Direct Measurement of the  $W$  Boson Width  $\Gamma(W)$ ," Phys. Rev. Lett. **74**, 341 (1995).
33. "Search for the Top Quark Decaying into a Charged Higgs Boson in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1800$  GeV," Phys. Rev. Lett. **73**, 2667 (1994).
34. "Evidence for  $t\bar{t}$  Production in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1800$  GeV," Phys. Rev. **D 50**, 2966 (1994); Phys. Rev. Lett. **73**, 225 (1994).
35. "Measurement of the Ratio  $\sigma B(W \rightarrow e\nu) / \sigma B(Z^0 \rightarrow e^+e^-)$  in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1800$  GeV," Phys. Rev. Lett. **73**, 220 (1994); Phys. Rev. **D52**, 2624 (1995)
36. "Measurement of the Ratio  $\sigma(W \rightarrow e\nu) / \sigma(Z^0 \rightarrow e^+e^-)$  in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1800$  GeV," Phys. Rev. Lett. **64**, 152 (1990).

Selected Public Media and Non-Refereed Publications:

1. "National Interest" Science: A Dangerous Contradiction," op-ed, Huffington Post, 4/5/16
2. "Should Academics Talk to Katie Couric?" *Chronicle of Higher Education*, Sacha Kopp and Naomi Wolf, 2/17/16
3. "Stony Brook Positions Students for Upward Mobility," College of Arts and Sciences Pre-College Institute featured in *Chronicle of Higher Education*, 5/2018

4. "Enlarging Physics Programs at Colleges and Universities," op-ed, *APS News*, 8/9/10
5. "Measurement and Manipulation of Beta Functions in the Fermilab Booster," M.McAteer *et al*, *Proc. 2011 Part. Accel. Conf.*
6. "Nonlinear dynamics studies in the Fermilab Tevatron using an ac dipole," R.Miyamoto *et al*, *Proc. IEEE 2009 Part. Accel. Conf.*
7. "Geometrical interpretation of nonlinearities from a cylindrical pick-up," R.Miyamoto, A.Jansson, M.Syphers, S.Kopp, *Proc. IEEE 2007 Part. Accel. Conf.*
8. "Tevatron AC dipole system," R.Miyamoto *et al*, *Proc. IEEE 2007 Part. Accel. Conf.*
9. "Tevatron Optics Using an AC dipole," R.Miyamoto *et al*, *Proc. IEEE 2007 Part. Accel. Conf.*
10. "Cycle-to-Cycle Extraction Synchronization of the Fermilab Booster for Multiple Batch Injection to the Main Injector," R. Zwaska *et al*, *Proc. IEEE 2005 U.S. Part. Accel. Conf.*
11. "Synchronization of the Fermilab Booster and Main Injector for Multiple Batch Injection," *Proc. European Part. Accel. Conf.*, Luzern, Switzerland (2004).

#### Textbooks and Instructional Resources:

1. *Quantum Mechanics of Particles and Nuclei*, 4<sup>th</sup> year undergraduate text
2. *Modern Physics*, e-text, <http://courses.cns.utexas.edu/kopp-PHY355>
3. *Introductory Physics*, e-text, <http://courses.cns.utexas.edu/PHY-bootcamp>
4. *Hands-On-Science*, inquiry-based lab book for pre-service elementary teachers in 4 volumes: (I) physical science, (II) earth science, (III) biology, (IV) astronomy

#### Seminars, Colloquia and Conferences:

1. "The Ivory Tower Meets the Public Marketplace of Ideas," public lecture, U. Kansas, 3/14/17.
2. "Preparing for a Career as a Researcher and Public Intellectual," graduate student workshop, University of Kansas, 3/15/17.
3. "Accelerator Neutrino Beams," Conference on the History of the Neutrino, Paris, France, 9/2018.
4. "What's the Value of a College Education, and How Can K-12 and University Educators Work Together to Maximize that Value for Students?" Keynote address at Texas Regional Collaboratives 20<sup>th</sup> Annual Meeting for K-12 Teachers, Austin, TX, 7/19/14
5. "How to Recruit Physics Majors," Physics Department Colloquium, Louisiana State Univ, 9/2012, Tufts Univ, 4/2011, Univ. Nebraska, 3/2011
6. "How to Recruit Physics Majors," Amer. Assoc. Phys. Teachers Meeting, Jacksonville, 1/2011
7. "Neutrino Oscillations," Physics Department Colloquium, University of Chicago (12/2010); Syracuse University (11/2010); University of Texas (9/2010)
8. "Accelerator-Based Neutrino Beams," lectures at International School on Neutrino Physics, KEK, Japan, 8/2010, Benasque, Spain, 6/2008, UCLA, 8/2006
9. "In Situ Measurements of Neutrino Beam Flux," Int'l Conf. Neutrinos, Athens, Greece, 5/2010
10. "Hands-On Science: An Inquiry-Based Integrated Science Content Course for Pre-service Elementary Teachers," PTEC Conference, Austin, TX, 5/2010
11. "Review of Neutrino Oscillations," Int'l Conf Leptons & Photons, Hamburg, Germany, 8/2009
12. "In Situ Measurements of Neutrino Beam Flux," NuInt09 Conference, Barcelona, Spain, 5/2009

13. "Review of Neutrino Oscillations," Int'l Conf Flavor and CP Violation, Lake Placid, 5/2009
14. "Neutrino Results from Fermilab," Physics Dep't Colloq, Columbia 4/2008, UTennessee 2/2008
15. "Determining the Neutrino Beam Flux," NuFact2007 Conference, Osaka, Japan, 8/2007
16. "Beam Flux Techniques for the Minerva Experiment," NuInt07 Conference, Fermilab, 5/2007
17. "Future Neutrino Beams in the U.S.," NNN06 Workshop, Seattle, Washington, 11/2006
18. "Long Baseline Projects in the US," invited plenary talk at the 2006 Neutrino Oscillation Workshop, Otranto, Lecce, Italy, 9/ 2006.
19. "Overview of the NuMI Beam," 5<sup>th</sup> International Workshop on Neutrino Beams and Instrumentation, CERN, Geneva, Switzerland, 9/2006
20. "Particle Production Uncertainties for the NuMI Beam," 6<sup>th</sup> International Conference on Neutrino Factories based on Muon Storage Rings (NuFact06), University of California, Irvine, 8/2006.
21. "Results on Neutrino Oscillations from Fermilab," Physics Dept. Colloquium, IIT, 5/2006.
22. "First Results from the Main Injector Neutrino Oscillation Search," High Energy Physics Seminar at University of Chicago, 5/2006, UCLA 4/2006, University of Colorado, Boulder, 4/2006.
23. "Status of the NuMI Beam at Fermilab," U.S. Particle Accelerator Conference, 5/2005.
24. "The NuMI Beam at Fermilab," 33rd ICFA Advanced Beam Dynamics Workshop: High Intensity High Brightness Hadron Beams (ICFA HB2004), Bensheim, Germany, 10/2004.
25. Presentations at the 4<sup>th</sup> International Workshop on Neutrino Beams and Instrumentation, KEK, Japan, 11/2003: (1) "Secondary Emission Monitors for NuMI," (2) "The MINOS Near Detector"
26. "The NuMI Neutrino Beam and Potential Upgrades to an Off-Axis Experiment," presentation at the NuFact02 Conference, Imperial College, London, 6/2002.
27. Presentations at the 3<sup>rd</sup> International Workshop on Neutrino Beams and Instrumentation, CERN, Geneva, Switzerland, 3/2002: (1) "Ion Chambers for Monitoring the NuMI Neutrino Beam," (2) "The NuMI Hadron Hose."
28. "The NuMI/MINOS Experiment," HEP Seminar, University of Maryland, 12/2001.
29. "The NuMI/MINOS Experiment," Tamura International School on Neutrino Physics, Tokyo University of Science, Tokyo, Japan, 11/2001.
30. "The NuMI Hadron Hose," 2<sup>nd</sup> International Workshop on Neutrino Beams and Instrumentation (NBI2000), Fermi National Accelerator Laboratory, 9/2000.
31. "CP Violation at CLEO," Texas Section Meeting of the American Physical Society, 10/1999.
32. "Studies of Decays of the  $B^0$  Mesons for Measuring  $\sin 2\beta$ ," American Physical Society Division of Particles and Fields, Los Angeles, CA, 1/1999.
33. "The CLEO III Upgrade," invited plenary talk at the International Conference on Advanced Technology and Particle Physics, Como, Italy, 10/1998.
34. "The CLEO-III Upgrade," Exp't Particle Physics Seminar, CERN, Geneva, Switzerland, 10/1998.
35. "Status of the CLEO-III Detector and CESR Upgrade at Cornell," Beauty '96, Rome, Italy.
36. "Prototype Studies of the CLEO-III RICH," IEEE Nucl. Sci. Symp., San Francisco, 10/1995.
37. "Electroweak Physics with  $W$  Bosons at CDF," HEP Seminar, Lawrence Berkeley Lab, 10/1994.
38. "Electroweak Physics with the  $W$  Boson at CDF," Exp't Particle Phys Seminar, CERN, 10/1994.

## Research Funding

- "Research in High Energy Physics," 2001 – 2005, U.S. Department of Energy, co-PI's (all from UT) D. Dicus, J. Klein, K. Lang, J. Ritchie, R. Schwitters, total award for S.Kopp \$470,753.
- "Research and Development on the Hadron Hose," 2001-2002, Fermi National Accelerator Laboratory, \$73,000
- "Design and Construction of NuMI Beam Monitor System," 2001-2005, Fermi National Accelerator Laboratory, \$383,000
- "Design and Construction of Profile Monitor SEM's for the NuMI Beam," 2002-2005, Fermi National Accelerator Laboratory, \$311,000
- "Construction of Secondary Emission Monitors for the Muon Cooling Test Facility," Fermi National Accelerator Laboratory, 2005, \$6,000.
- "Research in Accelerator Physics," Fermi National Accelerator Laboratory, 2005-2008, \$164,835
- "Research in High Energy Physics," 2006 – 2008, U.S. Department of Energy, co-PI's (all from UT) D. Dicus, J. Klein, K. Lang, J. Ritchie, R. Schwitters, total award for S.Kopp \$313,528.
- "Construction of a Replacement Hadron Monitor for the NuMI Facility," Fermi National Accelerator Laboratory, 2007-2009, \$150,000.
- "Upgrade of the Gas Delivery System for the Muon Monitors for the NuMI Facility," Fermi National Accelerator Laboratory, 2007-2009, \$70,000.
- "Scientists for Tomorrow Program," 2008 – 2012, National Science Foundation, Scholarships for Underrepresented Students in the Natural Sciences, \$600,000.
- "Research in High Energy Physics," 2009 – 2011, U.S. Department of Energy, co-PI's (all from UT) D. Dicus, K. Lang, J. Ritchie, R. Schwitters, total award for S.Kopp \$826,000 (total award for other faculty not included here).
- "Design of Secondary Emission Monitors for the Nova Facility," Fermi National Accelerator Laboratory, 2009-2010, \$70,000.
- "Transforming Undergraduate Education Grant," 2009 – 2011, University of Texas Regents, \$250,000.
- "Research in Accelerator Physics," 2009-2013, Fermi National Accelerator Laboratory, \$290,000.
- "Integrated, Inquiry-Based Natural Science Curriculum for Pre-Service Elementary Teachers," 2010 – 2012, U.S. National Science Foundation, \$179,000.
- "Research on Inquiry-Based In-service Teacher Professional Development on Elementary School Children," 2011-2012, Texas Regional Collaboratives in Science and Math Education, \$380,000.
- "Upgrade of the Muon Monitor System for the NuMI Facility," 2010 – 2011, Fermi National Accelerator Laboratory, \$130,000.
- "Collaborative Proposal: CI-TEAM DIFFUSION: Pedagogical Open-Access Research-based Tools for Advancing Learning in Science and Engineering," 2011 – 2013, U.S. National Science Foundation, \$149,914.

## Students & Postdoctoral Fellows Supervised:

- A. Chimonidou, postdoctoral fellow, 2008 – 2010, now lecturer at University of Texas
- N. Erickson, postdoctoral fellow, 20011 – 2012, now research scientist at University of Texas
- M. Jerkins, postdoctoral fellow, 2010 – 2012, now at AtomoTech
- L. Loiacono, postdoctoral fellow, 2010 – 2011, now at University of Rochester.
- J. Parker Cravens, postdoctoral fellow, 2008 – 2010, now at Raytheon Corp.
- Mikhail Kostin, postdoctoral fellow 2000 – 2001, now at Michigan State University.
- Meghan McAteer, PhD 2014, dissertation project: “Correction of linear and non-linear optics using ramped corrector magnets in the Booster Accelerator at Fermilab”
- Nick Evans, PhD 2014, dissertation topic: “Tomographic Imaging of Charged Particle Beams”
- Randi Ludwig, PhD 2012, dissertation project: “The Hands-On-Science Curriculum”
- Jasmine Ma, PhD 2011, dissertation project: “Oscillations to Sterile Neutrinos”
- Laura Loiacono, PhD 2010: “Measurement of Neutrino Cross Sections on Iron”
- Ryoichi Miyamoto, PhD 2008, dissertation title: “An AC Dipole for the FermilabTevatron”
- Žarko Pavlović, PhD 2008, dissertation: “Neutrino Oscillations with the MINOS Detector”
- Dharmaraj Indurthy, M.S.2006, dissertation title: “Beam Monitors for the NuMI Facility”
- Robert Zwaska, PhD 2005 “Accelerator Systems and Instrumentation for the NuMI Beam”

## Service Work to the Community:

- 2010-12: Member, Executive Committee, American Physical Society Texas Section
- 2008-9: Chair, Nominations Committee, APS Division of Particles and Fields
- 2007: Member Long Range Steering Committee of Fermi National Accelerator Laboratory
- 2007-9: Member, NSF Review Panel for DUSEL R&D Proposals, also NSF GRFP
- 2005-2007: Elected Chair, Fermilab Users’ Organization
- 2007: Chair, National User Facility Org. (FNAL, BNL, ANL, LBL, ORNL, TJNL, LANL, SLAC)
- 2005: organizer, 5<sup>th</sup> Int’l Workshop on Neutrino Beams and Instrumentation (NBI2005)
- 2004-5: Chair, Committee on Univ. Collaboration with the Fermilab Accelerator Division.
- 1995 - 2010: referee for *Phys. Rev. Lett.*, *Phys. Rev. D*, *IEEE Trans. Nucl. Sci.*
- 1992-1995: Summer Minority Student Research program, University of Chicago.