	CAS Dean for Thursday, Dr. Stefi Baum
8:45	Escorted from Hotel to Building 44
9: AM-9:50	Continental Breakfast with CAS Chairs (Conference Room Building 44, Room 307C)
10:00 -10:30 am	Meet with Provost Bain (Provost's Office 3rd floor, Building 39)
10:30 -11:30 am	Meet with the Interim Dean and Staff (4th floor CAS Dean Suite, Building 41)
11:30 -12:15 pm	Meet with Faculty of CAS (Room A03, Building 44)
12:15- 1:00 pm	Meet with Search Committee over lunch (Small Board Room, Building 39)
1:15 - 2:00 pm	University Community & Students (Room A03, Building 41)
2:00 - 2:30 pm	President Sessoms (President's Office 3rd floor, building 39)
2:30 - 3:30 pm	Deans-SBPA, LRD, GRAD, CAUSES(Conference Room Building 44, Room 307C)
3:30 – 4:30 pm	Meet with Provost (Provost's Office 3rd floor, Building 39)

Stefi Alison Baum
Radcliffe Institute for Advanced
Harvard University
Byerly Hall, 8 Garden Street
Cambridge MA 02138
Stefi_baum_80@post.harvard.edu
585-309-5714

To Whom It May Concern,

It is with great pleasure that I submit my application for the position of Dean of the College of Arts and Science at the University of the District of Columbia. I do so because I believe deeply in the mission of UDC as a public land grant and HBU college in our nation's capitol, a university that is devoted to providing an exceptional educational experience for its students through reflective transformation of the approach to higher education. I believe in the ability of scholarship and innovation in education and research to transform the outlook, goals, and capabilities of college graduates, and the ability of those graduates, in turn, to transform our society.

Introducing Myself

My resume will show you that I am deeply engaged in and devoted to interdisciplinary innovative education, cutting edge research, and student success, that I have rich experience leading and managing complex organizations, and that I am highly collaborative in my approach. I have a long history of working at the boundaries of science, engineering, arts, education and policy. I am dedicated to K12 education and public outreach and involvement of underrepresented groups in science. I have a long history of leadership and management in an FFRDC (Federally Funded Research and Development Center) type setting, in a University setting, and in Board and oversight roles of Not for Profit organizations. Nine years ago, I spent two years as a Science Diplomacy Fellow in the Economics Bureau of the US Department of State working at the boundaries of science and international policy. Thus I am well acquainted with DC and the inordinate opportunities it provides students and faculty for integrating learning, research, experience, and service.

I am currently on sabbatical as the Elizabeth S. and Richard M. Cashin Fellow at the Radcliffe Institute for Advanced Study at Harvard University. The Institute for Advanced Study is a highly interdisciplinary environment filled with artists, humanists, historians, and the occasional scientist or engineer! Here I am engaged in collaborative research projects in astrophysics, bioinformatics, and education research, in collaboration with colleagues at the High Energy Astrophysics Division, the Laboratory for Vision and Learning, the MIT Media Lab, and the Mind Research Network. In addition to my RIT undergraduate and graduate students who continue to carry out research with me during my sabbatical, six Harvard undergraduate students are collaborating with me on astrophysics, bioinformatics and education research at Harvard this year through the Radcliffe Research Partners Program.

When not on sabbatical, my current role is as Director and Chair of the Chester F. Carlson Center for Imaging Science (hereafter CIS) at the Rochester Institute of Technology (hereafter RIT). CIS is a large university education and research center and department that draws faculty and students from across the RIT campus to participate in its educational, outreach, and research programs. Currently CIS has over 85 faculty, scientists and engineers, with affiliations in 7 RIT Colleges, including Science, Engineering, Liberal Arts, Arts, Sustainability, Computing, and the National Technical Institute for the Deaf. In the past seven years, since I came to RIT as Director of the Carlson Center for Imaging Science, we have steadily grown the faculty participation, expertise, reputation, productivity, grant and development income as well as academic offerings and student graduation rates within the Center, dramatically increasing our publication rates in the refereed literature and systematically expanding the interdisciplinary interactions of the Center with the broader RIT and external communities.

The cornerstone of CIS is our educational programs, including our undergraduate degrees, multiple masters (including an online degree) and PhD programs, as well as the many opportunities we create for undergraduate and graduate research, supported by our strong externally funded research program. In our Center at RIT, we take education very seriously and we have been systematically expanding and innovating the education and research opportunities we provide our students at the high school level (see for example http://www.cis.rit.edu/interns/ & www.rit.edu/news/story.php?id=45752), at the undergraduate level (see for example http://www.cis.rit.edu/IFE & www.rit.edu/news/athenaeum_story.php?id=48388) and at the graduate level (see for example http://www.cis.rit.edu/EnvironmentalForecasting and www.rit.edu/news/story.php?id=48027). This year alone we are proud to boast that one of our undergraduates won a prestigious Goldwater award and two of our graduate students won prestigious NSF Graduate Fellowships! Through close dialog with the industries, Federal, state, and academic organizations that employ our student graduates, we continuously improve our educational programs to serve our students' interests with the result that our students have extraordinary success in their post-educational careers. And while our subject is an amalgam of hard science and engineering disciplines that typically have very low female participation rates nationwide (~25-30%) and typically even lower participation rates at RIT, fully 45% of our graduating seniors have been women over the past seven years. We have worked hard to create an environment which is family friendly for our faculty and staff and that encourages participation and degree achievement by under represented populations in our education and research activities and amongst our faculty, including African American, Hispanic, Native American, and Deaf populations.

Additionally, over the past years, our relationships with our industry partners have strengthened and expanded. In addition to our predominantly industrial external advisory board that meets with us twice a year, we now also have "affiliate faculty" from industry and FFRDCs, who collaborate with us and host

our students at their organizations. We have pursued and won several large institution-scale gifts, grants, and contracts that have helped to propel us forward. And we have done all this in an intensely student-focused environment, where student-faculty relationships are fostered in and out of the classroom; where excellence in research, education and application go hand in hand; and where we are jointly committed to using our unique capabilities to have a definitive and positive impact on society (e.g., http://www.cis.rit.edu/node/863 and e.g., http://www.youtube.com/watch?v=sIxtI3vSZXg&feature=youtu.be and e.g., http://www.cis.rit.edu/node/752 , http://www.cis.rit.edu/node/817).

Education and Pedagogy

In CIS, we have recently taken dramatic steps to change the education we provide our students. At the graduate level, we are seeking out the connections between graduate STEM education, policy, and business. With the assistance of a new $660,000 award from the NSF, we have created a research-intensive graduate masters program in Environmental Forecasting and Emergency Response. This program combines business and policy education with the traditional science and engineering requirements, includes a team project developed by and carried out for our local county emergency response agency, paid summer internships with our government and industry partners, and an interdisciplinary research thesis. For this program we have assembled a group of roughly a dozen faculties from across the RIT campus, including faculty from imaging science, computer science, informatics, environmental science, environmental management, public policy, and business, who together form a new learning and research community.

At the undergraduate level we have undertaken a much more dramatic approach – as we seek to fundamentally changing the way we approach undergraduate STEM education. The President of RIT is committed to bringing innovation into the RIT curriculum and our program in CIS is already broadly influencing STEM education at RIT (the third largest private technical institution of higher learning in the United States). So what are we doing and why?

First the why. We have observed the following limitations to the students and STEM education provided them at RIT: (1) the incoming students have been successful in the "the teacher teaches and the student learns" style of education of their high schools (after all they were the A students in that environment) and they enter college looking for the same experience – that is they come to us as passive learners and right now we are not being successful soon enough at transforming them to become active learners, (2) the students, even when they get A's in a class, frequently have not learned the material sufficiently to be able to use it in the next class or apply it to different types of problems (we think this most likely occurs because the students' learning experience has not included application of the material as they learn it in novel or original ways), (3) the students see the basic calculus and physics sequence courses as distinct individual courses that are "barriers" that must be overcome; they are not synthesizing the connections

between the material (and not too surprisingly either, because neither are their professors as the calculus and physics sequences are taught separately by different departments with little real cross consultation or collaboration), (4) the students typically spend their first year or two in foundational courses and have only limited opportunities to flex their innovative and creative brain muscles or see the benefits of their increasing capabilities applied to real world problems - this creates motivational issues for the students, (5) the students get little if any exposure to systems engineering, requirements definition, design, end to end planning, program management, budget development, purchasing, or project execution, communication or team work until the very end of their undergraduate experience if at all, (6) the students' hands-on training is dominated by (or limited by in reality) pre-derived determinate laboratory experiments, particularly early in their education, rather than the kind of open ended interdisciplinary team projects they will face in the real world, (7) their writing and communication skills are frequently underdeveloped, (8) their leadership skills are frequently underdeveloped.

So now the "what". In the fall of 2010 we completely abandoned our traditional lecture based pedagogy for incoming freshmen, and in its place implemented a radically different project-based curriculum for all first year students. Under this new approach, freshman from a range of disciplines worked together as a single integrated team (the class is capped at 20) for a full academic year to design, develop, build, and test a unique, fully functional imaging system. The system the students built the first year (each year there will be a new project) is one that creates "polynomial texture map" (PTMs) - digital images which allow the viewer to see the subject as it would appear if it were illuminated from any of a number of different directions. But rather than have our students reproduce an existing device, we asked them to advance the state of the art by deciding on an application and designing their system to meet the needs of that application. Our plans to have new undergraduates develop such a system raised significant interest among a diverse community of prospective users, including the Library of Congress and Boston Library, which hosted the students and their completed system to image their collection last summer.

Our goal in implementing this approach is to provide our students with a foundational experience that is more relevant, more engaging, more challenging, and more motivating than the approach that has been used to date. As a result, we fully expect them to be better prepared to succeed in their upper class studies, and ultimately to graduate with the tools they will need to thrive in an increasingly dynamic, collaborative, and innovative workforce. In the evolution of our freshman curriculum we also teamed with a writing professor, so that the students required writing and communication course is integrated as an essential component of this project learning. The intellectual merit of this new approach arises from the fact that it promises a dramatic improvement over our traditional classroom/lecture-based pedagogy in terms of student engagement. Unlike freshmen in most other introductory courses, these students have a level of autonomy and responsibility rarely seen by first year undergraduates at other universities. Although an

experienced team of faculty mentors scaffolds their efforts, these freshmen have full responsibility for determining the nature and direction of their activities as they work toward their project goals. Currently we find that even our best students come to us out of high school with a "tell us what we need to know" style of learning; a "you teach, we absorb" model of education. Only the best students, after three or four years of college, and active engagement in research opportunities, move to a more active model of learning where they are self motivated, seeking out information in a problem solving mode, and are willing to take risks to find answers. It is our intention, with this new freshman year pedagogy, to move all of our freshman to this stage by the end of their first year. The broader impacts of this project are equally compelling. Successful implementation of the proposed curriculum is a natural step in the evolution of education at the college freshman level, and can easily be applied to non-science fields as well. At a minimum, this "extreme" project approach is changing long-held perceptions about the abilities of first year students, and leading to a broadening of the role of faculty in undergraduate education. Every indication is that this new approach to pedagogy is exceeding even our ambitious expectations for its impact on our student cohort. The success of our program has already inspired other programs at RIT to migrate from their traditional approaches to freshman education, and we are working with them to expand this approach to other areas of science and beyond into the liberal arts.

Leadership and Management

I have spent a great deal of time thinking about (reading about, studying about, learning from past experiences and trial and error), how to make organizations, be they in academia or elsewhere, run most effectively. Having worked in mission-oriented organizations (such as the Space Telescope Science Institute), government organizations (the Department of State), with not for profits (e.g., the Rochester Museum and Science Center), and in academia (at RIT), I have developed a common philosophy about how people work best together to achieve important goals. Starting seven years ago now I began to write these concepts down and add to them over time, to develop a coherent picture of what I found most effective and important in leading an organization. I provide them below. As I hope you will see, my philosophy appears to resonate with the culture of UDC.

Twelve elements of My Style and Approach

1. Communication: open and full sharing of information
2. Interpersonal interactions: direct, honest, and up front
3. Strategic approach - a mission is the glue that binds and the fuel that energizes. Develop one, evolve it, update it, and use it as an ever-present guide and motivation.
4. Implementation: create and support an organizational structure with delegated responsibility, delegated authority, and delegated resources. Give people room and resources to run, and mentoring and guidance when they need it and an overarching goal to work towards.

5. Decision making: informed by open, collaborative problem solving with full vetting of issues, approaches, and opinions.
6. Value of people: human capital is the most important resource of any organization. People strive to be challenged, motivated, and rewarded, both individually and collectively. The organization, through a culture that expects excellence and achievement, should continually challenge people to stretch themselves to achieve new heights and embrace a continuous learning environment.
7. Value of new ideas: approach problems from innovative vantage points, seek ideas in new places and through new connections, take risks to achieve big outcomes.
8. Collaboration: seek to increase the size of the pie, not just your piece of the pie. Big advances, big opportunities, and unexpected outcomes can be achieved by collaborating freely across disciplines, across structures, within and beyond the institution.
9. Energy, Hard Work, and Passion: be passionate, work hard, enable and support others in all that they do. Be where and when you are needed and always accessible.
10. The Story: tell the story as it develops, to yourselves to develop a common culture and celebrate your successes, and to others to share your mission and grow your tribe of followers, supporters, and enablers.
11. Have fun; create a culture of enjoyment and pride at work.
12. Don't be afraid to lead from the front and by example. "There is a small risk a leader will be regarded with contempt by those he leads if, whatever he may have to preach, he shows himself best able to perform." Xenophon ~400 BC.

Application

Therefore, with excitement about the educational philosophy and mission of the UDC, with a deep commitment to its long-term mission and goals, and with an abiding believe in its basic tenets, I respectfully submit my application for Dean of the College of Arts and Sciences.

Warm Regards,

Stefi Baum
Professor, Department Chair, and Director
Chester F. Carlson Center for Imaging Science
Rochester Institute of Technology
Currently on sabbatical at the Radcliffe Institute for Advanced Study,
Harvard University.

RESUME – DR. STEFI BAUM, MARCH 24, 2012

Dr. Stefi Alison Baum
Director, Department Chair, and Professor
Chester F. Carlson Center for Imaging Science, 54 Lomb Memorial Drive
Rochester Institute of Technology, Rochester, NY 14623-5604

Currently the Elizabeth S. and Richard M. Cashin Fellow
Radcliffe Institute for Advanced Study
Harvard University
Byerly Hall, 8 Garden Street
Cambridge MA 02138

Email stefi_baum_80@post.harvard.edu, cell phone 585-309-5714

EDUCATION

B.A. Physics, cum laude	June 1980	Harvard University, Cambridge, MA
PhD Astronomy	Dec 1987	University of Maryland, College Park, MD

POST-DEGREE EDUCATION

MIT-Sloan Executive Series, 2002, 2003, 2005:
- System Dynamics for Senior Managers
- Managing Technical Professionals and Organizations
- The Innovative Organization

United States Foreign Service Institute, 2004, Global Issues
American Council on Education, 2005, Chairing the Academic Department
Harvard-MIT-Tufts Program on Negotiation, Executive Ed Series, 2007
- Program on Negotiation for Senior Executives
- Dealing with Difficult People and Difficult Situations

Pardee RAND Graduate School, 2009, New Security Challenges
Peabody Fellow, Vanderbilt Peabody Professional Institute, 2011
- Higher Education Management

EXPERTISE

Over 15 years of leadership and management experience in a range of environments including academia, national centers, and government - all in highly interdisciplinary environments. Expertise working at the interface of science, engineering, the arts and public policy. Experience with university pedagogy in science, engineering and innovation, including distance learning, K-12 STEM (Science Technology Engineering and Math) education and public outreach, and programs to recruit and retain women and minorities in STEM careers. Experience with faculty and staff hiring, review and promotion. Accomplished at grant writing and fund raising.

Research expertise in astrophysics, specializing in understanding the origin and nature of active galaxies and the impact of feedback on cooling and star formation in clusters. Research expertise in imaging science including development and deployment of astronomical instrumentation and missions, and development of algorithms for fMRI

brain imaging and analysis. Over 185 refereed journal articles published, 13 PhD and masters students and numerous undergraduate and high school students mentored. Research in last seven years supported by over 5 Million dollars in external grants.

Volunteer Work: Habitat for Humanity (occasional), Lacrosse Coach

Languages: English –native language, Dutch – moderate proficiency, French – limited

Security Clearance Top Secret (currently inactive)

DIRECT LEADERSHIP AND MANAGEMENT EXPERIENCE

Director and Department Head, RIT's Chester F. Carlson Center for Imaging Science. CIS is a highly interdisciplinary university education and research center at the Rochester Institute of Technology, providing undergraduate, masters, and PhD education, distance education, and extensive research activities in a range of imaging application fields including remote sensing, biosciences, color and vision, astronomy, geosciences, emergency response, media, and cultural heritage. CIS has >80 faculty and research staff, and 200 students. I note some of my accomplishments below.

- Created a collaborative, collegial education and research environment for a diverse and growing set of faculty and students.
- Grew the yearly research revenue by a factor of two (to ~10 Million), the yearly refereed publications by a factor of two, and the national/international awards to faculty and students by a factor of three.
- Raised 9 Million+ dollars in Gifts.
- Created an innovative new first year "extreme" project-driven undergraduate pedagogy and promoted the concept through talks entitled "Turning Science and Engineering Education on Its Head", in Baltimore, Boston, and Canada.
- Grew the honors science courses offered and student electives.
- Developed a new PhD program in Astrophysical Science and Technology.
- Increased the number of diverse faculty by a factor of 3.5
- Increased the number of Imaging Science PhD graduates by a factor of 4.
- Created a College of Science Distinguished Science Speaker Series, with a student round table lunch.
- Created an Imaging Hall of Fame, with yearly ceremony and keynote speaker.
- Collaborated with the Arts College to create a new undergraduate BS degree in Digital Cinema and collaborative research projects.
- Collaborated on an RIT NSF Advance PAID Program to increase representation of women in Science and Engineering at RIT.
- Collaborated in the creation of the Insight Laboratory to develop, deliver, evaluate and research cutting edge science education and outreach programs, including the Reach for the Stars Outreach Program with the Girl Scouts of Western NY.
- Developed a new NSF funded Masters of Science Program in Environmental Forecasting and Emergency Response.
- Secured two New York State Foundation for Science, Technology and Innovation Faculty Development Awards for faculty recruited to RIT.
- Hired, evaluated, tenured, and promoted faculty.

- Worked to develop a number of academic policies, including faculty workload policies, faculty tenure and promotion policies, PhD program policies, research professor policies, office and research space policies, etc.
- Served as faculty advisor to the student IDEA (Innovate, Design, Experiment, Apply) Club

RIT UNIVERSITY AND COMMUNITY COLLABORATION ROLES SERVED

- Member, Vice President for Research Advisory Committee
- Member, Graduate Dean PhD Program Advisory Committee
- Chair, Rochester Institute of Technology Search Committee for Director of the new PhD program in Sustainability
- Chair, University Academic Research Space Policy Definition Task Force, Rochester Institute for Technology/
- Partner, Partnerships for Plurality, Rochester Institute of Technology
- Member, Rochester Museum and Science Center K-12 Education Task Force
- Member, Rochester Museum and Science Center Planetarium Task Force
- Creator and Chair, College of Science Distinguished Speaker Series
- Member, Rochester Institute of Technology's Freshman Summer Reading Group Task Force
- Member, RIT's President's Women's Advisory Council
- Member, RIT, Provost Search Committee
- Member, RIT, Creativity and Innovation Working Group
- Member, Innovation Curriculum Working Group
- Advisory Board, Program for Innovation and Entrepreneurship, RIT
- Advisory Board, School of Mathematics and Statistics, RIT

Division Head, Engineering Software and Services Division, STScI.
The Space Telescope Science Institute (STScI) is a not-for-profit located on the Johns Hopkins Campus that serves as the Science and Operations Center for the Hubble Space Telescope and the next generation space telescope, the James Webb Space Telescope.

- Responsible for the leadership and management of 140 software developers, testers, systems engineers, scientists and hardware engineers supporting the Hubble Space Telescope and the James Webb Space Telescope.
- Participated in strategic direction setting for STScI as a member of the STScI's management council (composed of the institution's senior managers) and the Strategic Planning Council.
- Led the merger of three distinct engineering/science departments, each with their own culture and approach, into a single, coherent division.
- Enhanced the opportunities for the engineers at STScI through a series of actions, including (1) creating a sequence of position ranks, descriptions, and requirements for engineers culminating in the new position of Principal Engineer, that provided a career path for engineers, (2) providing new training opportunities for engineers including mini sabbaticals to encourage and enable their work on innovative new projects.

- Supported the development of a number of new business initiatives in conjunction with the New Initiatives Office.
- Routinely accomplished our mission goals on time and on budget.
- Responsible for budget development and execution, hiring, personnel review, actions and promotions.
- Was awarded an STScI Individual Achievement Award for my outstanding management and leadership as ESS Director.

Spectrographs Branch Chief/Team Lead, STScI

- Responsible for Management and Leadership of 25 PhD astronomers and technical staff supporting the development and operation of the second generation scientific instrument for the Hubble Space Telescope, the Space Telescope Imaging Spectrograph, through instrument development, on orbit commissioning, and science operations.
- Was awarded both an STScI Individual Achievement Award and an STScI Group achievement Award for this work.

Archive Scientist, STScI

- Provided scientific oversight of the HST archive development and deployment, including the database and user interface.
- Developed the HST Data Handbook, the first comprehensive manual for reduction and analysis of data from all of HST's instruments.
- Received both an STScI Individual Achievement Award and an STScI Group Achievement Award for this work.

DIRECT GOVERNMENT EXPERIENCE

Science Diplomacy Fellow, United States Dept. of State, Economics Bureau, Office of Agriculture, Biotechnology, and Textiles, Sponsored by the American Institute of Physics through the American Association for the Advancement of Science.

- Worked on development of US and international policy in the areas of genetically modified foods, agriculture, risk management, the precautionary principle, food and water security, and transparency.
- Served critical role in the development of a database of and public interface to all genetically modified plants brought to the United States Regulatory Agencies.

BOARD EXPERIENCE

- Trustee, Universities Space Research Association (USRA), six years, (term completed), including serving as member of the USRA Board Compensation and Strategic Planning Committees, member of USRA Homeland and National Security Committee.
- Board of Governors, Great Lakes Research Consortium.
- VP, Board of Directors, Society for Imaging Science and Technology (term completed)

PROFESSIONAL TIMELINE

Timeline	Professional Career	Academic Career
9/11 -	Elizabeth S. and Richard M. Cashin Fellow, Radcliffe Institute for Advanced Study	Sabbatical @ Harvard University
7/04 - present	Director, Department Chair, Center for Imaging Science, Rochester Institute of Technology	Full Professor, RIT, (Endowed Xerox Chair 2007-2011).
11/02-6/04	Senior Science/Diplomacy Fellow, ***US Dept. of State*** & American Institute of Physics Diplomacy Fellow Program	leave of absence from STScI
9/02 - ongoing		Co-I & Lead Operations Scientist, NIRCAM on JWST
10/02		Promoted to Full Astronomer, Space Telescope Science Institute (***STScI***)
11/99 – 10/02	Division Head, Engineering & Software Services Division, ***STScI***	
9/99 -11/99	Deputy, Science and Engineering Support Division, ***STScI***	
1/99 - 9/99		Sabbatical @ ***Princeton Univ.***
2/96 -12/98	Branch Chief, Spectrographs Team, ***STScI***	Awarded tenure 1997 ***STScI***
1/95 – 2/96	Space Telescope Imaging Spectrograph Scientist, Servicing Mission Office, ***STScI***	
10/91 - 1/95	Archive Scientist, ***STScI***	Promoted to Associate Astronomer 1994 ***STScI***
9/90-10/91		Hubble Fellow, ***Johns Hopkins University***
9/87-9/90		Postdoctoral Research Fellow, ***Netherlands Foundation for Research in Astronomy***

Addresses for Employment History

- Carlson Center for Imaging Science, College of Science, ***Rochester Institute of Technology***, 54 Lomb Memorial Drive, Rochester NY 14623
- Office of Agriculture, Biotechnology & Trade Policy, Economics & Business Bureau, ***US Dept of State***, 2201 C Street NW, Washington DC 20520
- ***Space Telescope Science Institute***, 3700 San Martin Dr., Baltimore, MD 21218
- ***Johns Hopkins University***, Department of Physics and Astronomy, Bloomberg Center, Homewood Campus, Baltimore, MD 21218
- ***Netherlands Foundation for Research in Astronomy***, P. O. Box 2, 7990 AA Dwingeloo, NL

FELLOWSHIPS AND AWARDS

- Girl Scouts of Western New York Women of Extinction Award, 2011
- Harvard University; Radcliffe Institute of Advanced Study Bunting Fellow, 2011

- Vanderbilt Peabody College of Education & Human Development, Summer Fellow, 2011
- University of Maryland, Outstanding Alumnus, Astronomy Department, 2010
- RIT Million Dollar (Grant) Club– 2005
- American Institute of Physics – US State Department Fellowship 2002/2003
- STScI Individual Achievement Award, for Management and Leadership (2002)
- Rolex Achievement Award (1999) – given annually to one female and one male college lacrosse player for career achievements supporting society.
- NASA Excellence Award, Hubble Space Telescope Servicing Mission 3A (1999)
- STScI Individual and Group Achievement Award, Space Telescope Imaging Spectrograph Team, (1996)
- STScI Group Achievement Award, Data Quality Project (1996)
- STScI Individual and Group Achievement Award, Archive Development/Deployment (1993)
- Annie Jump Cannon Award, awarded annually by the American Astronomical Society to a young female astronomer for Scientific Excellence and Promise (1993)
- Hubble Fellowship, original class of Fellows (1990)
- Junior Research Fellowship, National Radio Astronomy Observatory (1985)

EXTERNAL GRANT SUPPORT (COMPLETE LIST PROVIDED AT END OF RESUME)

Secured grants totaling just under 5 Million won during past six years, ~40% as Principal Investigator. Currently just over 3 Million dollars of additional grants have been submitted and are pending review. Among my successful grants are:

- NY State Foundation for Science Technology and Innovation Faculty Development Grant, PI - $729,000, Sensor Development
- Scientific Research Grants, totaling over 3.3 Million, as PI and Co-I
- NSF Professional Masters Grant, PI, "Science Master's Program: Decision Support Technologies for Environmental Forecasting and Disaster Response", ~$660,000
- An NSF Advance PAID Grant, "Establishing the Foundation for Future Organizational Reform and Transformation", ~$200,000, Co-I.
- New NSF REU Grant, PI, "Imaging in the Physical Sciences", ~$300,000
- K12 Education and Outreach grants totaling ~$800,000, as PI and Co-I.

EXTERNAL GIFT SUPPORT

Over the past 5 year period, the Chester F. Carlson Center for Imaging Science has received 9 Million dollars of donations in support of our programs, students, and research, as recorded by the RIT Development Office.

CURRICULUM DEVELOPMENT, EDUCATION, AND PUBLIC OUTREACH

- Co-Developer, Innovative Freshman Experience; Build an Imaging Instrument, Rochester Institute of Technology
- Co-Developer and teacher, Frontiers of Science, general education course, Rochester Institute of Technology
- Collaborator and teacher, Honors Curriculum Collaborative Creativity and Innovation Program, "Social Networking", Rochester Institute of Technology.
- Co-Developer, new PhD Program at Rochester Institute of Technology, Astrophysical Science and Technology (initiated 9/2008), served as co-Director of this PhD program til 2009.
- Collaborator, Insight Lab for Science Outreach and Learning Research, Rochester Institute of Technology, regularly engages 5-15 undergraduates in research each semester
- Lead, "Reach for the Stars" science outreach program with the Girl Scouts of Western NY
- Collaborator – "Stepping Stones to Research" with local high school
- Collaborator – "Learning Science through Innovation and Creativity: Workshops for Families"
- Participant, yearly summer high school intern program sponsored by the Center for Imaging Science at Rochester Institute of Technology (active)
- Engaged with North Star Center in STEM Summer Program for prefreshman. The North Star Center exists primarily to improve the retention of underrepresented populations.
- Member, Curriculum Committee, Sustainability Institute, Rochester Institute of Technology
- Co-Developer, PhysCalc integrated bridge course, to prepare students for the university physics and calculus sequence, Rochester Institute of Technology.

MAJOR EXTERNAL COMMITTEE MEMBERSHIPS (SELECTED)

- Member, Federal Astronomy and Astrophysics Advisory Committee (AAAC)
- Arizona State University, School of Earth and Space Exploration Academic Program Review Committee
- Chair and Member, American Astronomical Society Awards Committee
- Member, James Webb Space Telescope Science Advisory Committee
- Member, Science Team, Near Infrared Camera, James Webb Space Telescope
- Chair, National Optical Astronomy Extragalactic Time Allocation Committee
- Chair, Chandra Extragalactic Time Allocation Committee
- Member and Chair, National Astronomy and Ionospheric Center, Arecibo, Visiting Committee
- Member and Chair, Associated Universities Incorporated (AUI), National Radio Astronomy Observatory Visiting Committee
- Member, National Radio Astronomy Observatory (i) Operations Advisory Committee and (ii) Science Advisory Group, Extended Very Large Array Telescope.

- Member, National Research Council of Canada, Peer Review of the Herzberg Institute of Astrophysics
- Member, Director's Review, Dark Energy Camera and Survey, Fermi National Laboratory
- Member, NASA Senior Review
- Member, Associated Universities Incorporated Operations Advisory Group

MEETINGS CO-ORGANIZED

- Analysis of Emission Lines, STScI May Symposium 1993
- Women in Astronomy, IAU General Assembly Session 1994
- NGC1068 – Galaxy, Starburst and AGN 1996
- Galaxies at the Highest Resolution, IAU Symposium 1999
- National Academy of Science workshop on Global Challenges and Directions for Agricultural Biotechnology, 2004
- The Extended Very Large Array Vision: Galaxies through Cosmic Time, 2008

RESEARCH

- Space and ground based observations of Active Galaxies, Galaxy Clusters, & High Redshift Systems; Analysis and interpretation of the origin and nature of activity in galaxies and the evolution of galaxies and galaxy clusters.
- Observational techniques: Optical and ultra-violet spectroscopy and imaging, radio interferometric imaging and spectroscopy, X-ray imaging.
- Engaged in activities to develop astronomical algorithms, hardware, and missions.
- Development of algorithm and statistical techniques for the analysis of fMRI brain imaging data used to study schizophrenia.
- Over 180 scientific papers published in refereed journals.

COMMUNITY SERVICE

- Have served and continue to serve on numerous NASA & NSF scientific review panels and time allocation committees.
- Served on Financial Review Committees for HST and for Chandra.
- Served on American Astronomical Society Employment Committee
- Serve as referee for professional journals on an ongoing basis

PROFESSIONAL SOCIETIES

- American Astronomical Society
- American Association for the Advancement of Science
- American Institute of Physics
- International Astronomical Union
- SPIE
- Optical Society of America

GRADUATE THESES SUPERVISED OR CO-SUPERVISED

- Jack Gallimore – "The Kinematics of the Near Nuclear Gas in Seyfert Galaxies" 1995, U. Maryland, PhD

- Ed Colbert – "Superwinds in Seyfert Galaxies" 1997, U. Maryland, PhD
- Chun Xu – "VLBA and ROSAT Imaging of Nearby Radio Galaxies: Towards Understanding the Nature of Radio Activity", masters received, PhD on hold, U. Maryland
- Gijs Verdoes-Klein – "Nuclei of Nearby Radio Galaxies: Interplay Between Activity and Galaxy Structure" – 2001, Leiden, PhD
- Jacob Noel-Storr – "Kinematics of the Central Regions of Nearby Radio Galaxies: Constraining the Demographics of Black Holes" – 2004, Columbia Univ, NY, PhD
- David Russell – "Ultraviolet Observations of Radio Jets: Constraints on Jet Physics" – 2004, University of Manchester, PhD
- Avanti Tilak – "Chandra and VLBA Observations of Low Luminosity Radio Galaxies" –Physics, Johns Hopkins University, PhD
- George Privon – "Emission Line Imaging of Powerful Radio Galaxies", Rochester Institute of Technology, Imaging Science, masters.
- Andrew Michael – "Classification of Schizophrenia Using fMRI Imaging" - Rochester Institute of Technology, Imaging Science, PhD
- Linpeng Cheng – "Interpixel Capacitance in IR Arrays for Astronomy - Implications for the James Webb Space Telescope", Rochester Institute of Technology, Imaging Science, Masters
- Grant Tremblay – "The Evolution of Powerful Radio Galaxies", Rochester Institute of Technology, Astrophysical Science and Technology, PhD, current.
- Siddharth Khullar – "Wavelets Applied to fMRI Data in the Analysis of Schizophrenia", Imaging Science, PhD, current.
- David Saroff - "Solar Physics; Modelling Magentic Fields and Solar Erruptions", Astrophysical Science and Technology, PhD, current.
- Shruti Gopoal – "Eye tracking, Hand Tracking, and Brain Imaging Applied to the study Cognition, Attention, and Short Term Memory"

POSTDOCS SUPERVISED OR CO-SUPERVISED

- Esther Zirbel
- Anton Koekemoer
- Marek Kukula
- Andre Martel
- Catherine Buchanan
- Preeti Kharb
- Jake Noel-Storr
- Rupal Mittal

Short Biography: Dr. Stefi Baum, Xerox Chair
Director Chester F. Carlson Center for Imaging Science,
Rochester Institute of Technology.

Sep. 30, 11

Dr. Stefi Baum joined the Rochester Institute of Technology (RIT) in July 2004 as Professor and Director and Chairperson of the Chester F. Carlson Center for Imaging Science. The Carlson Center for Imaging Science is a highly interdisciplinary University Research and Education Center, dedicated to pushing the frontiers of imaging in all its forms and uses, with research programs in remote sensing, sensor and detector development, algorithm development, vision and perception, astrophysical science and technology, biomedical imaging, print science and engineering, document reconstruction and color science. Through education leading to BS, Masters, or PhD degrees, the Center produces the next generation of educators and researchers who develop and deploy imaging systems to answer fundamental scientific questions, monitor and protect our environment, help keep our nation secure, aid medical researchers and practitioners in their quest to conquer disease, and improve humanity's standard of living through innovations that expand human perception and understanding.

Dr. Baum joined RIT after serving one and a half years as an American Institute of Physics Science Diplomacy Fellow at the U.S. Department of State where she worked to promote agricultural biotechnology in developed and developing countries. Before that she spent 13 years at the Space Telescope Science Institute (STScI) located at the Homewood Campus of Johns Hopkins University in Baltimore. STScI is the science operations center for the Hubble Space Telescope and the next generation space telescope, the James Webb Space Telescope (JWST). While at STScI, Dr. Baum was most recently the Head of the Engineering and Software Services Division where she led up to 140 scientists, engineers, and computer scientists responsible for the development and maintenance work for the science ground systems of HST and JWST. Earlier, she led the science operations center's development and deployment of a major astronomical instrument, the Space Telescope Imaging Spectrograph. Prior to that, she served as lead scientist on the development of the Hubble Space Telescope archive, the first fully functional pipeline and on-line archive for astronomical data.

Dr. Baum earned a BA in physics with honors from Harvard University and a PhD in astronomy from the University of Maryland. Her personal research focuses in two areas: (i) the study of activity in galaxies and its relation to galaxy evolution and (ii) the development of image processing and statistical algorithms applied to functional magnetic resonance brain imaging for the diagnosis of schizophrenia. Dr. Baum is active in the development of new mission concepts and innovative college education. She has published over 185 papers in refereed journals; in the past six years 12 of these publications were with undergraduate student coauthors. Dr. Baum is also very active in education and public outreach and is committed to the engagement of youth and the public in science, technology, engineering, and mathematics.

BIBLIOGRAPHY, STEFI ALISON BAUM

Articles in Refereed Journals

(Note: In the past seven years since joining academia, I have published 14 referred journal articles with undergraduates - in 3 of these papers the undergraduate was first author. The undergraduate authors (starting in 2006) are indicated with a *.)

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2. T.M. Heckman, E.P. Smith, **S.A. Baum**, W.J.M. van Breugel, G.K. Miley, G.D. Illingworth, G.D. Bothun, and B. Balick, "Galaxy Collisions and Mergers: The Genesis of Very Powerful Radio Sources," *Astrophysical Journal*, 311, 526 (1986).
3. S. Hoban and **S.A. Baum**, "A VLA Search For 2 cm Continuum Emission From Comet P/Halley," *Icarus*, 70, 264 (1987).
4. R. Elston and **S.A. Baum**, "VLA Observations of W50: A Study of the Interaction of SS433 with its Environment," *Astronomical Journal*, 94, 1633 (1987).
5. C.P. O'Dea and **S.A. Baum**, "A Search for OH Absorption in NGC 1275," *Astronomical Journal*, 94, 1476 (1987).
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2. S. A. Baum, "The Accidental Astronomer", chapter in the book, Motherhood, the Elephant in the Laboratory: Women Scientists Speak Out, edited by Emily Monosson, (2008)

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1. **S.A. Baum**, "HST Archive Primer and HST Archive Manual," Version 1.0, editor, Space Telescope Science institute (1992,1993).
2. **S.A. Baum**, *et al.* "Hubble Space Telescope Data Handbook," Version 1.0, editor, Space Telescope Science Institute (1994).
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8. **S.A. Baum**, P. Hodge, "Plans for the STScI STIS Pipeline I: Overview," STIS Instrument Science Report, 95-06, (1995).
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Table 1. Complete List Grants and Contracts 2004-2011, Stefi Alison Baum

Role	Prime Sponsor	Title	Award	Status
PI	**National Science Foundation (NSF)**	**NSF Research Experience For Undergraduates: Imaging in the Physics Sciences**	**$220,000**	**Awarded 04/2011**
CoI	**NSF**	**Boundary Crossing Teams in Support of Math and**	**$294,946**	**Awarded 8/2011**

		Science Excellence in Our School Systems		
PI	**NASA**	**Completing the Chandra 3C Snapshot Survey: Extragalactic Radio Sources with z<0.3**	**$44,990**	**Awarded 4/2011**
PI	**NASA**	**High Time Resolution Astronomy Using Small Telescopes**	**$6667**	**Awarded 11/2010**
PI	**NASA**	**JWST/NIRCAM Education and Outreach Activities**	**$7000**	**Awarded 09/2010**
PI	**NIH**	**Imaging Science Applied to the Study of Schizophrenia and Other Mental Disorders**	**$29,667**	**Awarded 09/2010**
PI	**NSF**	**Science Master's Program: Decision Support Technologies for Environmental Forecasting and Disaster Response**	**$662,813**	**Awarded 06/2010**
Co-PI	**NASA**	**NASA Science and Technology on the Family Calendar**	**$660,000**	**Awarded 6/2010**
Co-PI	**NASA**	**Linking Cold Gas and Dust with Intracluster-Medium Cooling, Star Formation and AGN Heating in Brightest Cluster Galaxies**	**$5,000**	**Awarded 09/2010**
Co-PI	**NASA**	**Imaging Strong Shocks in the Compact Steep Spectrum Radio Galaxy B3 1445+410**	**$44,177**	**Awarded 08/2010**
Co-PI	**NASA**	**Towards an Understanding of the Effects of Fueling on the Central Engine of Powerful Radio Galaxies**	**$10,000**	**Awarded 04/2010**
Co-PI	**NASA**	**NYSG Education and Outreach Supplement Proposal**	**$5,000**	**Awarded 07/2009**
Co-PI	**National Aeronautics & Space Administration (NASA)**	**The Origin of the Mid to Far-infrared Emission from Powerful Radio Galaxies**	**$103,265**	**Awarded 06/2009**
Co-PI	**NASA**	**Completing the Cycle of Cooling, Star Formation and Heating**	**$10,538**	**Awarded 08/2009**
Co-PI	**Motorola Foundation**	**Learning Science through Innovation and Creativity: Workshops for Families**	**$30,700**	**Awarded 02/2009**
Co-PI	**NASA**	**Evolution of Compact Quasars and Radio Galaxies**	**$17,450**	**Awarded 02/2009**
Co-PI	**NASA**	**Engaging K12 Researchers through Astronomy-**	**$14,807**	**Awarded 09/2009**

		Teacher Partnerships		
Co-PI	NASA	High School Student Explorations of Planetary Surfaces in Digital Immersive Worlds	$44,522	Awarded 09/2009
PI	NASA	Constraints on Accretion Disk Physics in Low Luminosity Radio Galaxies	$13,545	Awarded 10/2008
PI	NASA	IRS Spectroscopic Follow up of Spitzer Brightest Cluster Galaxies	$15,000	Awarded 09/2009
PI	Mind Research Network	Imaging Science Applied to the Study of Schizophrenia	$26,333	Awarded 9/2009
PI	NASA	Does AGN Heating Quench Star Formation…	$9,976	Awarded 12/2008
Co-PI	NSF	Establishing the Foundation for Future Organizational Reform and Transformation	$199,770	Awarded 06/2008
Co-PI	NASA	Constraining the Cold Gas and Dust in Cluster Cooling Flows	$414,631	Awarded 10/2007
Sen. Pers.	NASA	A Lidar Imaging Detector for NASA Planetary Missions	$1,097,409	Awarded 09/2007
Co-PI	NASA	Towards a Complete Sample: 3CR Extragalactic Radio Sources with z < than 0.3	$35,000	Awarded 09/2007
Co-PI	NASA	The Journey of a Photon: "High School Student Involvement in Developing Their Community's Understanding of Detector Science"	$44,986	Awarded 07/2007
Co-PI	NASA	HST FUV Observations of Brightest Cluster Galaxies: The Role of Star Formation in Cooling Flows and BCG Evolution	$36,053	Awarded 05/2007
PI	Department of Energy (DOE)	Mind Institute Fellowship	$55,000	Awarded 04/2007
Co-PI	NASA	Resolving the Critical Ambiguities of the M-Sigma Relationship	$201,497	Awarded 09/2006
PI	NASA	NRAO Junior Fellowship-Andrew Michael	$50,268	Awarded 09/2006
Co-PI	NASA	A Census of Star Formation in the Brightest Cluster Galaxies: Is Star Formation the Ultimate Fate of the Cooling Gas?	$86,054	Awarded 08/2006
PI	NASA	JWST/NIRCAM Project-Mod 2	$131,794	Awarded 05/2006
PI	NASA	Black Holes and Gas Disks	$10,068	Awarded

		in a Complete Sample of Radio-Loud Ellipticals-II: Kinematics		**11/2005**
PI	**NASA**	**IRS Spectroscopy of 3CR Radio Galaxies**	**$61,463**	**Awarded 08/2005**
PI	**NYS Office of Science, Technology & Academic Research (NYSTAR)**	**Faculty Development Program: Recruitment of Donald Figer**	**$727,935**	**Awarded 07/2005**
PI	**NASA**	**Summer Student to use Subpixel Repositioning (SER) techniques to Sharpen Chandra X-Ray Images**	**$6,019**	**Awarded 05/2005**
PI	**NASA**	**James Webb Space Telescope Near Infrared Camera University of Arizona Project**	**$125,000**	**Awarded 11/2004**
PI	**NASA**	**Ultraviolet Snapshots of 3CR Radio Galaxies**	**$45,758**	**Awarded 09/2004**
PI	**NASA**	**Infrared Snapshots of 3cr Radio Galaxies**	**$40,000**	**Awarded 09/2004**