GT-CETL FACULTY AWARD FOR ACADEMIC OUTREACH NOMINATION

DR. STEFAN FRANCE
School of Chemistry & Biochemistry

TABLE OF CONTENTS

1. Nomination letter

Professor L. Andrew Lyon, Chair, School of Chemistry and Biochemistry

2. Summary of Outreach Goals and Activities

3. Letters of Support

Professor David M. Collard, Associate Dean, College of Sciences
Dr. J. Cameron Tyson, Director of Graduate Studies, School of Chemistry and Biochemistry
Dr. Keith L. Oden, Director of Academic Diversity, College of Sciences

Georgia Institute of Technology

School of Chemistry and Biochemistry

January 31, 2014

Re: Stefan France

To Whom It May Concern:

It is with great pleasure that I write this letter to nominate **Dr. Stefan France** for the **CETL Faculty Award for Academic Outreach**. Stefan joined the School of Chemistry and Biochemistry at Georgia Tech as a tenure-track Assistant Professor in August 2007. He is currently in his sixth year and was recently promoted to Associate Professor with Tenure in August 2013. Since his arrival, Stefan has consistently demonstrated his dedication to K-16 activities that promote interest and learning in STEM fields. In particular, Stefan has a keen interest in increasing/broadening participation in STEM field and many of his activities target women and underrepresented groups.

Stefan has participated in a number of Georgia Tech-sponsored outreach programs that promote STEM education. He has been active in Hands-on Future Tech (targets 6th-8th grade minority male students) and Buzz to Biotech (targets middle to high school STEM students). He has also been an active participant in the College of Science FOCUS Program, which brings minority undergrads and exposes them to graduate school. This event also serves as a powerful recruiting tool (several FOCUS students have enrolled in Georgia Tech programs for grad school).

Beyond the Georgia Tech programs, Stefan has, on numerous occasions, gone into the local secondary schools to promote STEM education and STEM careers. In addition, he has served on numerous career panels, provided lab tours and delivered research/science discussions to foster interest in STEM.

Stefan has also been directly involved with the training of undergraduates through research in organic chemistry. Since he started at Georgia Tech, Stefan has supervised **~30 undergraduates**. He has supervised more than **15 Georgia Tech undergrads** pursuing majors ranging from Chemistry and Biochemistry to various disciplines in Engineering. He has mentored 8 undergraduates as part of the School of Chemistry and Biochemistry Summer Research Experiences for Undergraduates (REU) Program and 2 more undergraduates as part of the NSF Center for Chemical Evolution (CCE) Summer REU Program. These REU students came to Georgia Tech from a broad distribution of colleges and universities around the country including Calvin College, Carroll University, Westminster College, UMBC, Purdue, Johns Hopkins, Scripps College, University of Puerto Rico, and Vanderbilt. One of the REU students, Kayla Sims, came from Georgia Perimeter College, and following her time in Stefan's lab, she enrolled at Georgia State to pursue a BS in chemistry. He has also trained 2 international exchange students; one from Leeds College (U.K.) and the other from Hong Kong University of Science and Technology. His undergraduates have also received various awards and accolades, including summer fellowships. For instance, one of his students, Carson Swanson, was a Beckman Foundation Scholar. Another was awarded a Pfizer AIR Minority Summer Fellowship. Stefan has also mentored a high school student, Antron Spooner, who is currently enrolled at Cornell for his undergraduate studies.

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Another important component in Stefan's active role in undergraduate research is his commitment to diversity. Of the undergraduates he has mentored, **twelve are women and eight are from underrepresented groups**. This diversity is represented in the make-up of Stefan's lab as there are three females, three students from underrepresented groups and two international students.

Stefan has also built a strong organic chemistry research program with broader interests in method development, natural products synthesis and medicinal chemistry. Moreover, Stefan has assembled a strong team of researchers rooted in a vigorous training in organic chemistry. He currently has a group of twelve graduate students. His graduate students have been successful in obtaining various fellowships and awards, including invitations to various sponsored graduate research symposia. He has proven to be an excellent recruiter and has been directly involved in working with prospective students to help them choose Georgia Tech for their graduate studies.

Stefan has received several teaching and research accolades since joining the Georgia Tech faculty. Upon starting this position, he received a 2007 FACES Career Initiation Grant. He was then awarded a 2009 ORAU Ralph E. Powe Junior Faculty Enhancement Award. More recently, he obtained an NSF CAREER Award. He received the 2012 Lloyd Ferguson Young Scientist Award from the National Organization for the Professional Advancement of Chemists and Chemical Engineers (NOBCChE). Stefan received 2013 Georgia Tech Sigma Xi Young Faculty Award and is currently a 2014 CETL Hesburg Award Teaching Fellow.

Stefan was a key hire for the School of Chemistry and Biochemistry since one of the long-range foci is to integrate organic chemistry with the burgeoning field of chemical biology. His efforts have helped in this endeavor. He brings a broad and diverse background and expertise to our School that complements the faculty's interests and strengthens our interdisciplinary interactions. Furthermore, his efforts in mentoring and training undergraduates have been immensely important in the growing the brand of the School of Chemistry and Biochemistry.

I truly believe Stefan is a perfect candidate for the CETL Faculty Award for Academic Outreach. His STEM outreach efforts have been far-reaching and he has directly impacted the lives of hundreds of K-16 students. I wholeheartedly support his nomination and urge you to seriously consider his application.

Thank you for your time and consideration.

Sincerely,

L. Andrew Lyon, Professor and Chair
School of Chemistry and Biochemistry

Summary of Outreach Goals and Activities

Much of my outreach activities during my time at Georgia Tech have been guided by my passion for increasing representation/participation of women and underrepresented groups in STEM fields. To support this passion, my activities have primarily focused on students in Grades 2-16). These efforts can be classified in three major directions: (1) encouraging interest in STEM with middle school students; (2) Encourage interest in STEM with high school students; and (3) encouraging interest in STEM with undergraduate students.

1. Encouraging interest in STEM with middle school students (grades 2-8). To encourage interest in STEM with middle school students, the focus is less on delineating the specific scientific details and more on explaining and cementing the relationship between science and every-day life. As an example, I recently participated (2014) in Mimosa Elementary School's family night, where students and their parents were exposed to science and technology. I was part of the session, "Meet a Chemist." My role was to relate chemistry to everyday life. There were chemistry undergrads who were performing scientific demos that really got the students and their parents excited. I spent a lot of time speaking with parents, whose primary question was "How do we support our child's interest in science and math?"

My usual answer to this question is to encourage the child to find out the answers for themselves (with guidance and direction from an adult). The discussion then always turned to finding various resources, programs and/or opportunities outside of the home or school that support these students' explorations. I have been a part of several of these STEM-promoting programs at Georgia Tech that seek to foster STEM interest in middle school students and I always try to disseminate this information to the parents so that they are made aware. For instance, over the past three years, I have been actively involved in Buzz on Biotech, a graduate student-run program that brings K-12 students to Georgia Tech and exposes them to cutting-edge science. During the program, I have consistently interacted with the students by providing lab tours and discussing chemistry applications as they relate to everyday medicines that students know. Over the same time period, I have also been involved in Hands-on Future Tech, a program that targets 6-8th grade boys from underrepresented groups and exposes them to STEM through science demos, lab tours, research discussions and career panels. Recently, as part of the NSF Center for Chemical Evolution's Science and Arts Initiative, I implemented a video step dance competition that merges a cultural dance-style with science concepts. This program targets African-American middle school, high school and undergraduate students. Through the competition, we established a relationship with the Men of Valor and Excellence (MOVE), a non-profit organization focused on after-school programming for middle and high school students, where stepping is one of their main activities. I recently had the MOVE group step at the Hands-on Future Tech event in the Fall.

2. Encouraging STEM with high school students (grades 9-12). When fostering enthusiasm in the sciences for high school students, it is important to expose them to cutting-edge research that is directly trying directly addresses difficult, every-day problems (health issues, energy, climate-change, etc.). Since being at Georgia Tech, I have implemented a two-pronged approach to increasing this exposure. The first approach involves serving on STEM career panels, judging poster/project competitions, hosting laboratory tours, and participating in "Career Days" that are held at various high schools. The second approach involves hosting high school students in my lab to perform research.

Approach 1. I have actively served on/participated in numerous STEM career panels whether they were held on Georgia Tech's campus or at various regional and national conferences. For instance, at the 2011 National Meeting of the National Organization for the Professional

Advancement of Black Chemists and Chemical Engineers (NOBCChE), I served on two STEM career panels before ~100-120 high school students. In another example, through a collaboration between Georgia Tech and Usher's New Look Foundation in 2012, I provided lab tours and research discussions to over 20 high school students as part of their "World Leadership Day". I have served as a judge for the 2010 Siemens Regional Competition in Math, Science and Technology that was held in Atlanta. Since 2009, I have participated in and will continue to participate in a number of Career Days and STEM Fairs at various high schools including Dekalb Early College Academy, Frederick Douglass High School, Georgia School of Math, Science and Technology, and Miller Grove High School.

Approach 2. From 2011-2012, I hosted a high school student in my lab to perform research. Through the junior/senior internship program at Gwinett School of Math, Science and Technology (GSMST), my former undergraduate student (a science/technology teacher there) contacted me and recommended Antron Spooner, a talented senior African-American male, as a someone who could use some mentorship and guidance. Antron worked in my lab over the course of two semesters. He worked three days a week at the end of his school day. Antron's experience in my lab helped to expose him to cutting-edge research and solidify his passion for science. Antron graduated in Spring 2012 and enrolled at Cornell University where he is currently majoring in biology and chemistry. This past summer, Antron came back and continued his work in my lab. I intend to continue working with GSMST to identify promising students and expose them to more research opportunities.

3. Encouraging STEM with undergraduate students (Grades 13-16). Outside of teaching, my efforts in working with undergraduates specifically focus on exposing the target group to research opportunities and exploring STEM careers; as well as mentoring and recruiting.

Research: I am a very strong believer in undergraduate research. Over the past five years, my lab has mentored a total of 18 GaTech undergraduates and two international exchange students. A number of my former undergrads are currently enrolled in graduate programs (med school, Ph.D, Pharm. D., etc.) or working as teachers, researchers at government labs, or in other STEM-related professions. I have also been extremely active in two summer Research Experiences for Undergraduates (REU) Programs: the School of Chemistry and Biochemistry REU Program and the NSF Center for Chemical Evolution REU Program. Since I started at Georgia Tech, I have hosted 10 summer REU students. Of the previous summer REU students whom I have hosted, five are currently enrolled in a research-focused Ph.D. program in chemistry or a related field (Dan Tao: UC Davis; Stephanie Bartel: Medical College of Wisconsin; Laura Marholz: University of Colorado at Boulder; Vanessa Arredondo: UC Irvine; Joel Aponte-Guzman: Georgia Tech in my research group). Both Vanessa and Joel have recently been awarded 2012 NSF Graduate Research Fellowships. I have hosted two exchange students, one of which enrolled at Georgia Tech for graduate studies (Advisor: Art Raguaskas). Recently, I have included undergraduate researchers from my lab as authors on research papers. Undergraduate Paul Grzybowski was recently a co-author on two manuscripts and graduated as part of the Georgia Tech undergraduate thesis program. REU students, Katherine Francois and Elayna Tillman, are each contributing authors on two separate submitted manuscripts. Another undergraduate student, Nico Eidson, and an exchange student, Jack Davy, are slated to be co-authors on a manuscript that is currently being written. As a further demonstration of my commitment to undergraduate research, I am one of the participating faculty members on a funded proposal to the 2008 Beckman Scholars Program (PI: D. Collard), from which my undergraduate Carson Swanson has received the award. I am also a co-PI and a key scientific contributor to a project funded by the NSF Division of Undergraduate Education (PI: C. Morris) to improve the GaTech undergraduate research

program by reorganizing the curriculum and laboratory.

Mentoring/Recruiting: Mentoring is such an important component to increasing/encouraging participation of women and underrepresented groups in STEM. I have actively sought to share my experiences with students and offer guidance whenever I can in order to help them set and achieve their goals. My outreach activities with undergrads are always aligned with this endeavor. I am a member of the faculty planning committee for the Georgia Tech Chapter of NOBCChE. I am also on the GT FACES Mentoring/Steering Committee that serves to mentor Georgia Tech FACES fellows. I am actively involved in the School of Chemistry and Biochemistry's recruitment efforts, both at the graduate and undergraduate levels, through activities during the recruitment weekends. I have been an active participant in Georgia Tech's FOCUS recruiting program since my arrival in 2007. I have served on a number of panels at local and regional Career fairs and professional development programs on campus. Furthermore, my visits to several HBCUs and PUIs have also served as recruiting trips. Similar recruiting efforts at various regional and national conferences have helped to directly increase the applicant pool for a number of our undergraduate-targeted science- and research-related programs. I have served as a speaker at several diversity-focused symposia, including the University of Alabama's 2013 Diversity Awareness Symposium sponsored by the Department of Chemistry. I was the keynote speaker at the 2013 December meeting of the Cincinnati ACS, which was co-sponsored with the city-wide NOBBChE Chapter. During this meeting, I ran a STEM Career panel for ~20-25 minority freshman and sophomores. As mentioned above, my lab has continually supported two separate summer REU programs. Throughout my time at Georgia Tech, I have also mentored more than fifteen women and minority undergraduates.

4. Conclusion. With the goal of reaching as many people as possible, my academic outreach efforts have been broad, spanning students in grades 2-16. Beyond my own research, these activities really represent some of the most rewarding experiences that I have had as a faculty member. Furthermore, as a member of an underrepresented group, I truly understand the importance of mentorship and being exposed to various STEM careers and opportunities at an early age and throughout my education. At all secondary education levels, I believe this type of interaction is crucial to increasing the pipeline of diverse students toward STEM careers.

Georgia Institute of Technology

School of Chemistry and Biochemistry

28 January, 2014

Members of the awards committee:

It is a pleasure to provide this letter of support for the nomination of my colleague **Professor Stefan France** for the *GT-CETL Faculty Award for Academic Outreach*. Stefan was tenured and promoted to the rank of Associate Professor in 2013 with a well-rounded program of scholarship in which academic engagement with organizations in the Atlanta area is an integral part.

Stefan has taken a leading role on the Education, Outreach and Diversity Board of the NSF Center for Chemical Evolution (CCE), a multi-institutional $20M five-year program led by Nick Hud at Georgia Tech. Outreach is an important feature of the center. Stefan has brought truly innovative ideas to this program. These include a video step dance competition to better engage middle school, high school and college students in science education. Through the center he has also fostered ties with MOVE, a non-profit organization that provides after-school programming for k-12 students. He has weaved these two activities into the FutureTech program, a weekend event that is specifically directed at better engaging minority middle school males and their parents in STEM.

Stefan has a long list of other activities to consider, including talks at local elementary, middle and high schools to educate students and parents about STEM careers. He has also been active in recruiting graduate students at regional HBCUs, and through participation in the National Organization of Black Chemistry and Chemical Engineers (NOBCChE). He has also mentored high school students in his own lab, including one who has gone on to undergraduate study at Cornell. Stefan has also welcomed undergraduates from other colleges into his research group, including an impressive 11 visiting students as part of various REU programs.

Stefan brings a real passion to these outreach activities. In doing so, he has effectively engaged students from a broad set of backgrounds. In doing so, he contributes to Georgia Tech's and the nation's goal of broadening participation the STEM disciplines. Recognition of Stefan France though the *GT-CETL Faculty Award for Academic Outreach* would be fitting recognition of his efforts.

Sincerely,

David M. Collard
Professor and Associate Dean

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Georgia Institute of Technology

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January 31, 2014

To Whom It May Concern:

It is my pleasure to recommend Stefan France for the GT-CETL Faculty Award for Academic Outreach. I have known Stefan since 2007 when he joined the Institute as a faculty member in our School. He has recently been promoted to Associate Professor with tenure as a result of a vibrant and productive research program, excellence in teaching, and a high-level of service to the Institute. I was delighted to learn that he was being considered for the Institute Faculty Award for Academic Outreach. Stefan is the perfect person who enjoys sharing his experiences and scientific knowledge with the community and leading a positive change as a result of this outreach. I would like to share with you some of the activities that make Stefan deserving of this award:

(i) *Educational innovation, especially in K-12 venues:* Stefan has been an active member of the Georgia Tech Center of Chemical Evolution. In addition to supporting research activities of the center, he has served as a member of the center's Education, Outreach and Diversity Board. He has promoted science and arts outreach by organizing and coordinating a video step dance competition which primarily targets African-American middle school, high school, and college students. He also developed a relationship with the MOVE organization, a non-profit focused on after-school programming for middle and high school students. Stefan has also participated in public education through the NSF Center for Selective C-H Functionalization. He visited local elementary, middle and high schools to educate students and parents about STEM and STEM careers. Most recently, he visited Mimosa Elementary School this past month to chat with parents and students about his education and career path and how STEM is important for future generations.

(ii) *Discovery and understanding while promoting teaching, training, and learning:* Stefan has been active participant in the School's summer research experience for undergraduate programs. One program is offered by the School of Chemistry and Biochemistry and the other program by the GT Center for Chemical Evolution. Since he has been at the Institute, he has hosted 11 visiting undergraduates in his research lab each summer (i.e. more than 1 per year for the time that he has been here!). Stefan has also hosted a high school researcher (Antron Spooner) in his lab for two semesters through Gwinnett School of Mathematics, Science and Technology Senior Project Program. Antron is currently enrolled at Cornell University for undergrad studies. Stefan has regularly hosted Tech undergraduates throughout the year. He also currently advised 9 PhD students. In addition to an exciting research experience, Stefan provides these young scientists with knowledge, guidance, and encouragement....he is an excellent mentor.

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(iii) *Outreach and achieving diversity in STEM fields*: Stefan is active in recruiting students for the School of Chemistry and Biochemistry. He has presented seminars at two minority-serving institutions, Morehouse College and Jackson State University. He has regularly provided lab tours and served on panels. Panel discussion topics have ranged from STEM careers, graduate school admissions (and how to be successful in graduate school), and applying for fellowships. He has regularly participated in the School's graduate visitation weekend as well as graduate admission committee meetings (which reviews and makes decisions on applications to the School's graduate program).

Stefan is an active faculty advisor to the GT Chapter of the National Professional Advancement of Black Chemists and Chemical Engineers (NOBBChe). For his efforts and effectiveness in promoting outreach and diversity, Stefan received the 2012 NOBCChE Young Scientist Award presented at the National NOBCChE Conference. He also served as keynote speaker at Cincinnati-chapter of the American Chemical Society Meeting this past December and participated in two STEM career panels for ~75-80 high school underrepresented students at this meeting. He is active in Georgia Tech's annual FOCUS Celebration Weekend in which promotes graduate school opportunities for minority undergraduates. As part of the FOCUS program, he gives tours of his lab as well as provides advice on picking the right graduate program, advisor selection, choosing research project, applying for fellowships, etc. He has also been an active participant in the School's Future Tech program where middle school minority students spend one day at Georgia Tech learning about educational and career possibilities in science and engineering.

Stefan truly embodies the faculty member with the right balance of research, teaching, and service. He has been highly active is promoting science/STEM to young minds (K-12 students, undergraduates) and colleagues. He is a role model and deserving of the GT-CETL Faculty Award for Academic Outreach. It is my pleasure to give him my highest recommendation for this award.

Sincerely,

J. Cameron Tyson

J. Cameron Tyson, Ph.D.
Senior Academic Professional
Director of Graduate Studies-Chemistry & Biochemistry
Co-Director Research Experiences for Undergraduate Program-Chemistry & Biochemistry

Georgia Institute of Technology
School of Chemistry and Biochemistry

January, 23, 2014

Dear Selection Committee,

It is a pleasure to write a letter in support of Dr. Stefan France for the GT-CETL Faculty Award for Academic Outreach. Dr. France and I have been colleagues for the past six years in GT's School of Chemistry & Biochemistry. I serve as the Director of Academic Diversity and one of my responsibilities is to develop and implement K-16 outreach initiatives with various educational stakeholders (i.e., students and teachers) in Georgia. Stefan, along with doing his own outreach activities, has played a key role in supporting many of my outreach activities by volunteering his time, his scientific expertise, and knowledge.

Stefan has been engaged in numerous outreach activities that have advanced discovery and understanding of STEM while promoting teaching, training, and learning. All these activities have had significant impact on students' and teachers' lives. For example, Stefan currently serves on the Education, Outreach and Diversity Board (EOD) for the NSF Center for Chemical Evolution (CCE), based out of GT. As part of the Science and Arts Outreach, he has organized and coordinated a video step dance competition which primarily targets African-American middle school, high school and college students and merges step dancing and science education. Through the Center, he has developed a working relationship with the MOVE organization, a non-profit focused on after-school programming for middle and high school students. These activities have become a part of the Center's yearly programming.

Another example in the area of K-12 public education is Stefan's participation for the last four years in my Hands-on Future Tech event that is open to all students but, is targeted toward underrepresented minority (URM) 6^{th}- 8^{th} grade boys. He has provided hands-on science demonstrations, served as a role model, led discussion groups "about STEM in our everyday life and the importance of STEM careers". As part of last year's program, he had the previously mentioned MOVE step group, provide a fun step performance on science; which received favorable evaluations from both students and parents.

Through the NSF Center for Selective C-H Functionalization, Stefan has been active in going to local elementary, middle and high schools to educate students and parents about STEM and STEM careers. For the last two semesters he has mentored a high school researcher (Antron Spooner) in his lab through the Gwinnett School of Mathematics, Science and Technology Senior Project Program. Antron is currently enrolled at Cornell University for undergrad studies.

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In the college outreach area, Stefan works with me as a co-adviser for GT- NOBCChE (National Organization for the professional Advancement of Black Chemists and Chemical Engineers) chapter. He provides mentoring, academic, and career advice to our undergraduate and graduate student participants. Stefan has also been an active faculty participant in two summer REU programs: one through the School of Chemistry and Biochemistry and one through the CCE. He has mentored nine Chemistry REU students; five are currently in graduate school.

Also, in regards to college outreach, Stefan has been an active participant in recruiting for the GT School of Chemistry and Biochemistry; recently giving talks at two minority-serving institutions (Morehouse and Jackson State). In addition, he has participated in various panel discussions ranging from STEM Careers, Graduate School, and Fellowships.

In closing, I am stating that I enthusiastically recommend Dr. Stefan France for the GT-CETL Faculty Award for Academic Outreach.

Please feel free to contact me if I can be of further assistance.

Best regards,

Keith L. Oden, PhD
Director of Academic Diversity
College of Science