CITATION

FEBRUARY 25, 2012

In keeping with the resolve of the Mathematical Association of America to take substantive action each year to honor extraordinarily successful teaching at all post-secondary levels, the Golden Section of the Association is pleased to identify

MATTHIAS BECK

as the recipient of its sectional

AWARD FOR DISTINGUISHED COLLEGE OR UNIVERSITY TEACHING OF MATHEMATICS

PROFESSOR BECK IS WIDELY RECOGNIZED AT SAN FRANCISCO STATE University for his extraordinary success as a teacher of many subjects at many levels. (Much of this citation, including that sentence, is quoted directly from students' and colleagues' testimonials.)

The repertoire of courses to which he has been assigned is vast. He is among the very few mathematicians who are both exemplary teachers and world-class researchers. In parallel with the classroom setting, Matt is a tireless and highly successful mentor for students. Eleven of his research papers published since 2008 feature student coauthors. Alongside this research, the National Science Foundation has also funded his program to enhance the experience of SFSU graduate students and increase the percentage who enter PhD programs. Of the sixteen supported during its first two years, fourteen have obtained funding for doctoral study. Their diversity reflects that of SFSU, a national leader in that regard.
Since 2005, Dr. Beck has also been codirector of the San Francisco Math Circle, an integrated program for public-school teachers and their students in grades six to eleven. He has organized a class that trains SFSU students to lead the problem-oriented Math Circle sessions. The SFSU students are well prepared, and Matt participates in the sessions only in the way the school teachers do. After the young students are gone, he organizes feedback to his SFSU students.

Matthias Beck earned a mathematics degree in 1997 from the Universität Würzburg in Germany, and a credential to teach high-school mathematics and physics there. In 2000 he earned a doctorate in mathematics from Temple University, then served for four years at the State University of New York in Binghampton. He came to SFSU in 2004, where he is now Associate Professor.

One of his senior colleagues wrote, “I do not know any other accomplished research mathematician who also has training in pedagogy....Every one of his students that I know of remembers him as a wonderful teacher with a heart.” One of those remarked, “Prof. Beck is exceptionally responsive to students’ questions and comments. He also cares especially much about our learning, and goes above and beyond the call of duty to help us.” Students and colleagues alike treasure Matt’s humbleness and his sense of humor.

Matthias Beck is an exceptional mathematician and teacher. Through an arrangement with the University of California, he has been directly involved with the research of three doctoral students. He has supervised twenty master's theses at SFSU, and influenced many of those students to continue to doctoral studies. He is a renowned teacher at SFSU, in courses from advanced geometric combinatorics to calculus to teacher preparation, and author of two texts for intermediate-level and advanced undergraduates. He provides stimulation to students by involving them in projects with high-school teachers and students. Those students, in turn, will continue through higher education to become the next generation of scientists and scholars.

We are proud to present this year's Section Award for Distinguished College or University Teaching of Mathematics to an extraordinarily effective, inspiring teacher, Dr. Matthias Beck.
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Mathematical Association of America
Awards for
Distinguished College or University Teaching of Mathematics
Nomination Form

PLEASE TYPE

Nominee’s Name (First name first): Matthias Beck

College or University Affiliation: San Francisco State University

College or University Address: 1600 Holloway Avenue

City: San Francisco State: CA Zip: 94132

Nominee’s email address: matbeck@sfsu.edu

Is the nominee a current member of the Mathematical Association of America? Yes

Nominee’s number of years teaching experience in a mathematical science: 10

Has the nominee taught at least half time in a mathematical science during the current academic year or during the previous year if on approved leave or sabbatical? Yes

In the space below, please briefly describe the unusual personal and professional qualities of the nominee that contribute to his or her extraordinary teaching success.

Through his publications, classes, and outreach efforts, Matthias Beck has inspired and raised the mathematical consciousness of numerous undergraduate and graduate students as well as K-12 students and their teachers. He has brought the horizons of research mathematics to undergraduate and graduate students alike. Through his motivation, many students, from diverse backgrounds and at different stages of development, have conducted original research in mathematics and attained a level of achievement they hadn't realized possible. He has been particularly successful in mentoring women from underrepresented minority groups. Just last year, two were accepted into PhD programs at UCLA and UC Berkeley. Professor Beck is the recent recipient of NSF funding for the GK-12 program (CM)2, a comprehensive program to enhance preparation of graduate students for advanced study and increase the percentage of students entering PhD programs, particularly among underrepresented minorities. This program also aims to seed future mathematical successes in the following way: (CM)2 fellows spend 12 hours per week in local public schools working with students and teachers on mathematical enrichment activities they help design. Since 2005, Dr. Beck has co-directed the San Francisco Math Circle. Getting San Francisco State students involved in this activity is just one facet of his constant effort to inculcate mathematical culture at all levels.

Name of nominator (First name first): Joseph Gubeladze and Eric Hayashi

Address: Dept of Mathematics, SFSU, 1600 Holloway Ave., San Francisco, CA 94132

Telephone: (415) 338-2251 Email: soso@sfsu.edu / hayashi@sfsu.edu

Signature: Gubeladze, Hayashi Date 01/20/12

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To: Selection Committee for the MAA Award for Distinguished College or University Teaching  

From: Joseph Gubeladze and Eric Hayashi  

Date: January 20, 2012  

Subject: Narrative for Nomination of Matthias Beck  

We hereby nominate our colleague, Matthias Beck, for an MAA Award for Distinguished College or University Teaching. We address below the criteria for this prestigious award.  

Eligibility. Dr. Beck graduated in 1997 from Universität Würzburg with a mathematics degree and credential to teach high school mathematics and physics. In August 2000, he received a PhD in mathematics from Temple University then went to SUNY Binghamton as a Robert Riley Assistant Professor (fall 2000-spring 2004). Since fall 2004 he has been on the mathematics faculty at San Francisco State University, earning tenure and promotion to Associate Professor effective fall 2009. Except for spring 2008, he has been teaching full time at SFSU since fall 2004. This totals over ten years of university teaching. Dr. Beck is currently teaching two courses: Advanced Linear Algebra and a course supervising student/public school GK-12 collaboration. He also supervises seven graduate students in individual projects with one scheduled weekly hour per student. Additionally, he leads the San Francisco Math Circle. Dr. Beck is a member of the MAA.  

Success in teaching. Dr. Beck is widely recognized at SFSU for his extraordinary success as a teacher of many subjects at many levels. These include courses in calculus, concepts of the number system,
lower division course for prospective elementary school teachers), elementary number theory, introduction to proofs, modern algebra, linear algebra, complex variables, discrete geometry, combinatorics, polytopes, communicating mathematics, and analytic number theory. He also developed and taught a course, MATH 314 (Math Circle Seminar), which is designated as a Community Service Learning course in which students at SFSU participate in and get credit for 20 hours of community service.

In parallel with the classroom setting, Dr. Beck is a tireless and highly successful mentor to graduate students. Since 2006 he has supervised sixteen masters’ theses at SFSU. Currently he has five MA thesis students. Even though SFSU does not have a PhD program, Dr. Beck has advised one PhD thesis (a student at UC Berkeley) and currently is co-advising two more doctoral theses. Eleven of his papers, published since 2008, feature student coauthors (including publications in prestigious journals, such as the Journal of Combinatorial Theory Series A, Mathematische Annalen, and Mathematische Zeitschrift). One of his students, Mela Hardin, won the award for Best Graduate Presentation in Mathematics at the 2011 SACNAS National Conference for a talk based on her MA thesis. (SACNAS is an organization seeking to advance hispanics/chicanos and native Americans in science.)

Dr. Beck has ongoing NSF funding which supports the GK-12 program (CM)$^2$. A major goal of this program is to enhance the preparation of graduate students at SFSU for advanced study and increase the percentage of students entering PhD programs, particularly among underrepresented minorities. Out of the 16 students supported during the first two years of (CM)$^2$, 15 were accepted into PhD programs, all but one with funding. (The 16$^{th}$ student delayed her applications by a year.) Out of nine students supported each year, three (in the first year), four (in the second year), and two (in the third year) were underrepresented minorities, and each year four out of nine fellows were women.
According to department records, Dr. Beck’s student evaluations are unusually high. Perhaps stronger student recognition is the high frequency with which the graduating seniors ask him to be the faculty speaker at their department graduation ceremony.

**Influence beyond SFSU.** Dr. Beck’s influence extends beyond SFSU through the San Francisco Math Circle, his (CM)$^2$ program, two innovative undergraduate textbooks, and numerous colloquia, seminars and conference talks. He also serves on the editorial board of the prestigious *Journal of Number Theory*.

Since 2005, Dr. Beck has been Co-director of the San Francisco Math Circle. This is an integrated program for public school teachers and their students in grades 6-11. The weekly activities center around intriguing and challenging problems. As mentioned above, Dr. Beck has involved students at SFSU in community service through this program with the introduction of MATH 314. At the graduate level, his (CM)$^2$ fellows collaborate with public school teachers to enrich the mathematical experiences of their students. A long term goal is to seed future outreach once the fellows enter the profession.

Dr. Beck is co-author of two books published by Springer, both listed on the MAA Basic Library List. They are *Computing the Continuous Discretely* (with S. Sinai) and *The art of proof: Basic training for deeper mathematics* (with R. Geoghegan). To quote the review of his first book (MAA Reviews, Math DL, 2007):

"You owe it to yourself to pick up a copy of *Computing the Continuous Discretely* to read about a number of interesting problems in geometry, number theory, and combinatorics, all of which are interconnected and all of which can be built up pretty quickly from very elementary techniques. Even people who are familiar with the material would almost certainly learn something from the clear and engaging exposition that these two authors use."
Fostering curiosity and generating excitement about mathematics. Dr. Beck’s outreach through the SF Math Circle and (CM)$^2$ program serves this mission to wider community as do the aforementioned text books. He has given numerous colloquium talks to general audiences around the country including the Golden Section MAA Meeting at MSRI (Berkeley) and the Southern California/Nevada MAA Meeting at Cal State LA. His demonstrated success with MA students is clear indication of the motivating influence he has on his students.
Sample comments from student evaluations:

"Professor Beck is exceptionally responsible to students' questions and comments. He also cares especially much about our learning, and goes above and beyond the call of duty to help us."

"Beck is a phenomenal teacher. In this class I am not only learning the material, I am observing how to be a great teacher."

"The most inspiring, motivating and smart instructor I have ever had.

"The course was fascinating, the lectures were very clear, all thanks to the instructor."

Sample comments from peer evaluations:

"Dr. Beck has a friendly, informal teaching style and has developed a wonderful rapport with his students. I was impressed with Dr. Beck's sound pedagogy and his ability to ask questions that required students to reflect on their understanding of mathematics. It is clear that his students have responded to this approach: they actively participate in class discussion and do not hesitate to ask questions. Dr. Beck is also a superb lecturer -- his presentation was well-organized, clear, and enthusiastic with a sense of humor."

"There is no question that Dr. Beck is a master teacher. His work with this class was impressive in the sense that he asked just the right questions to keep the students thinking about the issues at hand. In addition, Dr. Beck's informal, easy-going style made the students comfortable and willing to participate in class discussion."

"Dr. Beck is an outstanding teacher. He has great rapport with his students and a wonderfully off-beat sense of humor. He maintains a high level of student interest and participation in his classroom by bringing to life the subject of mathematics."

"With all the give and take and humorous moments, his presentation appeared to be almost spontaneous, but his choice of examples and order of development revealed a master teacher at work."

"While Dr. Beck is clearly a master of this branch of mathematics [combinatorics], I was impressed most by the rapport between him and his students. Dr. Beck knew all the student names and used them frequently. The students participated more actively in discussion than I have seen in other advanced classes."
Letter in Support of Matthias Beck for Mathematical Association of America
The Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics

As a longtime member of the MAA, it is my pleasure to recommend Matthias Beck for the Haimo Award. Over the past half-dozen years I have interacted with Matt through the San Francisco Math Circle where Matt serves as the co-director and is actively involved in guiding SFSU graduates students who lead Math Circle sessions at public school sites, including Lowell, in San Francisco.

My initial involvement with Matt was through the workshops he led for high school teachers who brought students to the weekly math circles. The classes were challenging and nicely placed us (high school teachers) into the position of students working on math problems. I found the classes fun and useful as did my Lowell colleagues who attended.

Today, the San Francisco Math Circle meets at three public high schools, including Lowell. Matt has organized a SFSU class that trains SFSU students to lead math circle sessions at each of the three high schools. The SFSU students come to Lowell well prepared to lead sessions. Matt participates by sitting at a table working with two or three high school students who happen to be in his group. He lets the SFSU students run the entire session. After the high school students are gone, he gives feedback to his students.

Watching Matt work with his SFSU students, I have been impressed by his dedication, listening skills, commitment to and encouragement of his students, as well as his ability to build the confidence and skills of his students. As a long-time teacher myself, I appreciate his energy, work ethic, strong connection with and support of his students. Matt is approachable and kind and he provides opportunities for his students to have meaningful teaching experiences.

I have continued to be involved with the San Francisco Math Circle in large part because Matt has created a program that works well for middle school students, high school students, graduate college students, middle school and high school teachers. Receipt of the Haimo Award would be a well-deserved recognition of Matt's impressive talents and dedication to teaching mathematics.

Sincerely,

Bruce Cohen, Ph.D.
math.cohen@gmail.com
From: David Bao, Chair & Professor, Department of Mathematics
Subject: Recommending Dr. Matthias Beck for the MAA Teaching Award
Date: 18 January 2012

I would like to say a few words that complement the glowing account already provided by my colleagues Eric Hayashi and Joseph Gubeladze, with regard to their nomination of Dr. Beck for the Deborah & Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics.

Dr. Beck is the only faculty member in our Department who has given me a “blank check” to assign him to teach any course. And the repertoire of courses to which he has been assigned is vast, including Math Ed courses but excluding statistics. I have visited his classes and find his pedagogy elegant and effective, clearly the result of efficient planning and a deep sense of care about his students. My impression is corroborated by comments that students wrote on his teaching evaluations, and by the fact that he conducts an extra evaluation about a third of the way into each semester.

Dr. Beck is among the very few in our Department who are both exemplary teachers and world-class researchers. His papers and books are widely read (for example, cited 237 times by 192 authors), and he is a sought-after speaker in the colloquia and conference circuit. His writings exhibit the same elegance, and his results advance his research areas with the same effectiveness, as what I find in his teaching. It is no surprise but nonetheless notable that, besides the sizable NSF GK-12 grant mentioned in the nomination by Hayashi and Gubeladze, Dr. Beck is also the PI of an extremely competitive NSF research grant.

In spite of these accomplishments, Dr. Beck remains a most humble person and a dedicated citizen of our Department. Though his frustration with bureaucracy does get the better of him on rare occasions, he has always stepped up to the plate whenever I needed a volunteer or some task done.

I looked at the list of past recipients of this MAA Teaching Award and recognised the names of a few whose careers I have some familiarity with. These include Paul Zeitz, Dennis DeTurck, Edward Landesman, Robert Devaney, Lisa Mantini, Paul Halmos, and Frank Morgan. Without hesitation, I would put Dr. Beck among this elite group. Please give his nomination your most serious consideration.
To whom it may concern,

I am writing this letter with great pleasure in support of Prof. Matthias Beck’s nomination for MAA Award for Distinguished College or University Teaching of Mathematics.

I have been at SFSU Mathematics Department since 2000 and I sat in the Hiring Committee in 2003 when Prof. Beck was hired. His research and accomplishments were clearly meeting or exceeding our standards, but since I am in an area close to his research and I wanted him to be hired I was gearing myself up for a vigorous support campaign. When Matthias came to the on campus interview I realized that I did not need to campaign at all. Everybody loved Matthias, especially, the students he met and taught (we make our candidates to teach a class). In retrospect, of course, none of these are surprising.

Prof. Beck was trained in Germany to become a math/science high school teacher and probably he is one of the rare accomplished research mathematicians who also knows pedagogy (come to think of it: I do not know any accomplished research mathematician who also has training in pedagogy). His courses are always a hit whether they are linear algebra or combinatorics or graduate algebra. Everyone of his students that I know of remember him as a wonderful teacher with a heart. He is routinely selected by our students as the mathematics department graduation party speaker when he gives inspiring talks.

Matthias Beck’s activities that would qualify him for the MAA award are multifaceted: he has co-written an online textbook for introductory complex analysis; he has also written a textbook (published by Springer both in English and German) on introducing lattice point counting theory and methods to advanced students; and a new book project for a “Proofs and Exploration” course again published by Springer has just appeared (Matthias has been teaching this course at SF State very successfully.)

His contributions to American Mathematical Monthly are numerous. From early on, he has been spear-heading the math circle activities in San Francisco Bay Area at all levels (from middle school through college). One of the greatest things he has done is to apply and get a large NSF Grant that supports up to nine of our masters students who aspire to get into a PhD program in mathematical scientists. As part of this program, these students have to get engaged in teaching activities in SF school district middle and high schools for an entire year. I cannot think of a better way of supporting PhD aspirants with a passion for teaching at all levels. The program he runs involve regular math circle events as well as training sessions with the high school teachers.

His impact in our program has been enormous (even without the NSF grant that I mentione above this would have been the case). He has mentored over 20 MA students who got their degrees by writing a masters thesis. Some of these students have moved into PhD programs. His professional connections to the Bay Area and international mathematics community have been immensely important for all of these students and our department.

Finally, he is a mensch. He is a complete, likeable, thoughtful, generous human being. He cares about everybody, especially about teaching and his students. He deserves the award and many more.

Sincerely,

Serkan Hoşten
Professor of Mathematics
Anastasia Chavez  
Dept. of Mathematics, UC Berkeley  
970 Evans Hall #3840  
Berkeley, Ca 94720

Dear award committee,

My name is Anastasia Chavez and I am a former Master’s student of Professor Matthias Beck. I’ve known Matt since the summer of 2006, when I began my Master’s degree at San Francisco State University. I’ve come to recognize Matt as an advisor and mentor that is unique, rare and much needed in the mathematical sciences.

Considered a non-traditional student, I am Latina, first generation college graduate, began a family during my Master’s program, and a mathematician. All these factors greatly effect my need for a professor, advisor and mentor who is both skillful in mathematics and in the ways of life. I’ve come to appreciate in Matt a patience, curiosity, wisdom of how to challenge students, and motivation that excels students to success, all which is invaluable to the mathematical community.

When I began working on my Master’s thesis, it was Matt’s observation of my tendency towards number theory exercises that revealed my research question. This shows he is attentive to his students and has the experience and intuition to pick well-suited research questions. As our work progressed, he encouraged me to present my work at conferences, in poster presentation competitions, and introduced me to colleagues in his field. This gave me the confidence to attempt oral presentations at national conferences and win awards that I may otherwise would have overlooked.

Last, my acceptance to UC Berkeley’s mathematics department is a testament to Matt’s mentorship. After giving my Master’s thesis defense, I was invited to sit down with my committee to discuss things. When the question was asked, “So, where are you applying to graduate school?” I was modest in my choices, picking “safe” schools in which to apply. Matt quickly enforced, “You definitely should apply to Berkeley,” to which I was shocked, and moved. This small suggestion, as calm and deliberate as it may have been, is just how Matt eloquently conducts all his actions.

Matt is humble in his ways, yet potent in his intention. He has graduated many students whom have gone on to top schools, leads Math Circles in San Francisco, directs the CPM² program, and has advised students ranging from undergraduates to post-docs. He is active in various associations, has international and local collaborators alike, and fully supports the need for diversity in the sciences by advocating for underrepresented and non-traditional students in mathematics.

I am honored to be a former student of Matt’s. I believe he models the breadth and extraordinary abilities of a distinguished teacher of mathematics, and is most deserving of the Mathematical Association of America’s Deborah and Franklin Tepper Haimo Award for Distinguished Teaching of Mathematics.

Sincerely,

Anastasia Chavez
To whom it might concern,

I strongly support Matthias Becks nomination for the Mathematical Association of America Award for Distinguished College or University Teaching of Mathematics.

I have taken two graduate classes (combinatorics and advanced linear algebra) with Dr. Beck and I am currently working on my Master's thesis under his supervision. I consider the classes with Dr. Beck to be among the best taught classes I have ever taken. I have gone to him on more than one occasion to ask for advice on teaching my own classes. I know the way in which Dr. Beck sets up his classes and the way he lectures to be more than effective.

Dr. Beck prepares his classes in such a way as to promote the use of Latex, student involvement (not just in the lectures, but with other students outside the lectures), and student interest in material beyond the scope of the course. In each class he establishes an online forum for students to ask and answer questions related to homework and the course material. He encourages students not to email him questions, but to post questions to the forum so all can benefit from its discussion. These informal discussions on the forum lead to discussion of mathematics in and outside of class. Dr. Beck holds office hours at least twice a week, but he makes it known to his students that his door is always open to anyone wishing to discuss math. It’s this openness that draws students to him and leads his students to excel. He uses these discussions with students to introduce material outside of the course and assigns projects to students that are related to material covered in the class, but beyond what is covered in the class or the class text. He will assign project questions whose answers are unknown. It was one of these projects that led me to my Master’s thesis.

Dr. Beck has a style of lecturing that is both very informative and enjoyable. He plans his lectures to not just cover material, but to discuss techniques used in proofs. His proofs in class are different from those done in the class text and his discussion of them fosters understanding and an overarching view of the course material. In this way the class text is no substitute for his lectures, that is, much more can be derived from his lectures than can be obtained from the text. His explanation of material is clear and concise. He does not just give the information needed to do the homework, he gives the understanding needed to progress as a mathematician.

As an advisor Dr. Beck is extremely supportive and encouraging. We meet once a week and over holidays to discuss research. He gives his input without giving too much. It’s his input that leads to my creativity. He presents me with many opportunities to attend conferences and workshops. It’s his support that has given me the confidence to continue to a Ph.D program in mathematics.

Thus I strongly support Dr. Beck’s nomination.

Sincerely,

Logan Godkin
I first met Matthias Beck in my second year at San Francisco State University, when he was the instructor for Modern Algebra. Initially I was worried about this class, as it is generally considered one of the most difficult undergraduate math classes SFSU has to offer, due to its abstract nature and rigorous content. However, Matt was able to explain complex, intricate concepts in a way that made them clear and understandable. His class showed me how much fun upper division mathematics can be, and convinced me to switch my primary major to Mathematics. For the remainder of my time at SFSU, I took every course he offered, including two more algebra-related classes. This gave me the background and confidence I needed to go on to graduate school in Mathematics. I now study as a graduate student at Duke University with an emphasis in Algebraic Geometry, and I owe much of my success in the courses here to the solid background I gained from Matt’s algebra classes.

Matt’s enthusiasm for teaching extended beyond his requirements in the classroom. A few other undergraduates and I were interested in learning about topics which were not offered at SFSU. He donated his time over the course of two separate summers to lead independent study courses so that we could do so. I believe I learned more from these summer classes than in most other classes at SFSU. Also, at Matt’s suggestion, I entered two research projects into the annual College of Science and Engineering Project Showcase, something I would not have normally done. I am very glad I did, as this gave me a taste of what research in mathematics was like and greatly influenced my decision to continue studying mathematics in graduate school. All of this helped me develop a passion for pure mathematics that continues to drive me today.

Throughout my undergraduate career, Matt went out of his way to help and encourage me, above and beyond what was required. In addition to guidance in courses and research projects, he was consistently available in his office to talk about course material, applications for graduate school, general advising, or anything that happened to be on my mind. It is clear to me that he cares about his students, and that he genuinely enjoys teaching. To me, Matt was much more than a teacher; he was a mentor, a role model, and above all, a good friend. It is safe to say that without Matt’s guidance and encouragement, I would not be where I am today.