

## IN MEMORIAM

### Vicki Powers

(July 28, 1958 – February 2, 2025)

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Vicki Powers, of Emory University, passed away at home in Atlanta, Georgia, on Feb 2, 2025, from complications due to ALS, just a year short of receiving the diagnosis. She is survived by her husband Colm Mulcahy, and their daughters Ann Powers and Molly Mulcahy.

Vicki grew up in Atlanta, Florida, and New Jersey. She was educated at the University of Chicago (AB, 1980), and then at Cornell (PhD, 1985). After two years at the University of Hawaii at Manoa, during which time she married Colm Mulcahy, Vicki joined the math faculty at Emory, and a year later Colm joined the Spelman faculty. She and Colm had both been doctoral students of Alex F.T.W. Rosenberg.

In 1993, she became the second woman in the history of the department to get tenure, and in 2006, she was the first woman to be internally promoted to full professor. Today, women make up almost half of the Emory math department.

Vicki's early research was in ordered fields and the algebraic theory of quadratic forms. In time, she moved into real algebraic geometry, especially positive polynomials. Her theoretical work has been cited in applications of control theory such as robot design. She also published on the math of voting systems.

She traveled often to engage with collaborators throughout North America and Europe. In 2020, as COVID raged, Vicki was on sabbatical leave, and she speedily wrote the Springer book *Certificates of Positivity for Real Polynomials—Theory, Practice, and Applications*. Vicki recently remarked that she didn't feel treated differently by math colleagues, but noted that early in her career, the men in the department either had no children or had wives who cared for them. "I was very careful not to inconvenience my department, and had my kids in the summer," she added. Ann was born in 1990, and Molly arrived in 1993, just after Vicki got tenure. Colm recalls, "Curiously, it was my employer, Spelman, that threw a baby shower for us in 1990." Vicki had research leaves in Regensburg (1991–1992) and Madrid (2002–2003), during which Colm took the lead running the household. In 2013–2015, Vicki was an NSF Program Officer in the DC area.

Early in her career, she served as chair of the Emory faculty concerns committee of the President's Commission for the Status of Women, addressing some of the issues facing women academics. "We actually started getting Emory to move towards having a definite maternity and paternity policy—which they do have now," she recently recalled.



Vicki Powers, Portland, Oregon, August 2009

Vicki taught at the Enhancing Diversity in Graduate Education (EDGE) program in 2001 at Spelman College. Program co-director Sylvia Bozeman (Spelman) recalls, "She assisted a group of ten young women in making the transition from undergraduate to graduate-level maturity in abstract algebra, the majority of whom later earned doctoral degrees in the mathematical sciences." Participant Carla Cotwright-Williams PhD (now at the Department of Defense) commented, "Vicki was extremely kind and considerate as I struggled with my confidence with graduate-level math."

Spelman grad and later EDGE co-director Ulrica Wilson PhD (Morehouse College) remembers her graduate student days at Emory, "Vicki's office was across the hall from mine, and she was on my dissertation committee. I remember her warmth, her generous spirit, her love of food and travel, and the way she shared her whole self with me and others in the department. I will continue the lessons she taught me to live life to the fullest and not take yourself too seriously!!"

In 2024, Vicki received Emory's George P. Cuttino Award for Excellence in Mentoring, and comments from two of her four PhD students were quoted. One of those was Dionne Bailey (Angelo State University, TX), who was already raising two children when she got pregnant midway through graduate school. "[Vicki] would share some of the struggles she had being a female in her discipline and raising two daughters. She gave me some insight into things I might face. She was always open and more like a real person as opposed to just my professor," Bailey recalls.

Vicki's first PhD student, Kathleen Velueta (then Krzastek), writes: "She was an extraordinary advisor, teacher, mentor, and friend. I was a nontraditional student in many ways—much older than most graduate students, more experienced in teaching mathematics than "doing" mathematics and having a nonstandard undergraduate education. Vicki's friendly personality and teaching style made the difficult algebra classes understandable for me."

My own PhD student Sujatha Ramdorai (Bangalore/Vancouver) lived in the same building as Vicki in Regensburg over 30 years ago. “Long before EDI (Equity, Diversity, and Inclusion) became kind of mainstream, it was clear that these tenets were naturally ingrained in Vicki and Colm,” she recalls. “We often compared notes on bringing up children, [and] what it meant for girls and young women interested in entering politics, and what one had learnt about being women mathematicians.”

The memories of Tara Smith (University of Cincinnati) go back further. “I met Vicki at the very first mathematics conference I attended, in Corvallis in 1986, I was two years away from finishing my PhD. Subsequently, Vicki invited me to speak at the first conference where I would actually present my own research, at a special session in Chicago in 1989. We were both at the JMM in San Francisco, in January of 1991, each of us with infants in tow. Our mathematician spouses watched the babies while Vicki and I attended and presented at the Real Algebraic Geometry and Quadratic Forms sessions.”

Here are some reflections from Dwight Diffus, for many years the Emory mathematics department chair, on her huge contributions to Emory University and its mathematics faculty:

“Vicki had a wide variety of academic and nonacademic interests, persistent curiosity, and the wish to interact with and contribute to her communities—whether the discipline of mathematics, her department, college, and university, or the larger world. Vicki’s intellectual liveliness led to a substantial transformation in the main topic of her research from ordered fields and quadratic forms to real algebraic geometry. As a teacher she innovated repeatedly with new course design and pedagogy: two significant contributions are a sequence in life sciences calculus developed in the 1990s and, more than two decades later, a seminar and a regular course on the mathematics of electoral systems.



Vicki with daughters Ann and Molly headed to DC March in January 2017.



With her 2001 PhD student Dionne Bailey who recalls: “I honestly don’t think that I could have completed my dissertation with any other thesis advisor. She not only was a brilliant mathematician, but she was compassionate, understanding, and uplifting.”

Her breadth of interests was evident in her interdisciplinary contributions. Our department has a longstanding joint major with Economics featuring a senior seminar team-taught with an economist. After the retirement of one of the major’s founders, Vicki stepped in and offered it with a series of colleagues from Economics, all of whom spoke highly of her energy, commitment and versatility. She was instrumental in envisioning a new unit devoted to quantitative theory and methods that eventually grew into a quantitative theory and methods (QTM) department that now offers one of the most popular programs in Emory College. We also have a joint major with political science, thanks in large part to her.

For Vicki, institutional service was central to her role as a professor. It also fit with her outgoing nature and wish to contribute broadly. Her activities within the college and university were remarkable in breadth and depth: selection and hiring committees; task forces on research, student life, strategic planning and the status of women; committees on athletics, educational policy, the honor code and curriculum. For her the high points were the President’s Advisory Committee (2010–2013) and the College Tenure and Promotion Committee (2007–2010 and 2022–2024). The latter, in particular, requires intense, sustained engagement of its members. The payoffs, as Vicki liked to note, are the opportunities to discharge a central role of the faculty and to view the extraordinary quality and diversity of our colleagues’ scholarship across the arts and sciences.”

I, Parimala, worked alongside Vicki at Emory for the last 20 years, and I admired her balanced outlook, fairness, kindness, generosity, and above all her deeply human outlook. Her commitment to the encouragement of women in mathematics stands tall and will inspire generations to come. I have lost a dear friend, cherished colleague, and a great mathematician who instilled cheer all around her. Her spirit and impact will endure.