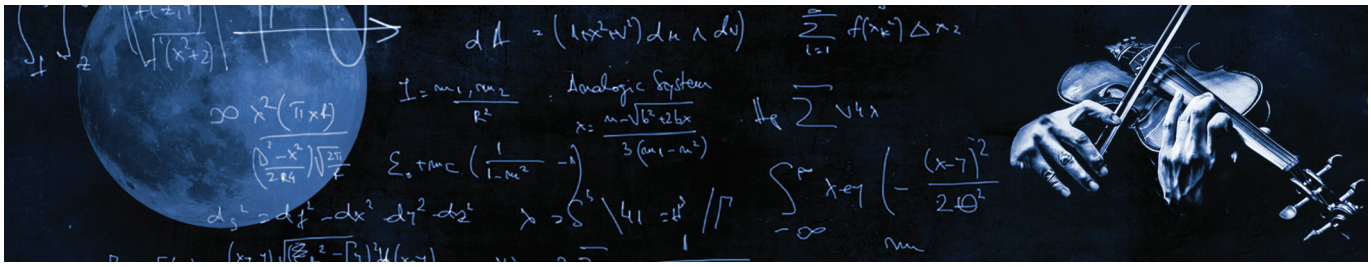

Mathematician (No Longer) Pseudonymous

Sophia D. Merow

Figure 1. IMAGINARY conference attendee Constanza Rojas-Molina in front of art signed "E. A. Casanova."

An exhibition at a July 2016 IMAGINARY[1] conference featured drawings by one E. A. Casanova. The artist watched as viewers milled around the gallery space at Berlin's Theater Aufbau Kreuzberg; she saw them stop to digest, discuss, admire her portrait of mathematical physicist Sylvie Paycha (far right in Figure 1), her graphic summary of the prior year's "It All Adds Up" conference, her depiction of the path to a professorship (see Figure 2).

When Cédric Villani and Eugenia Cheng happened by and snapped some photographs of the art, its creator longed to cross the room and introduce herself as such.

But she didn't. The name on her badge didn't match the name on the framed posters.

"I want to go and say, 'I did this,'" she remembers thinking. "But I can't make the leap because it isn't the same name."

Constanza Rojas-Molina has always drawn. (Well, except for when the habit fell by the wayside as she earned her bachelor's in mathematics at Chile's Universidad de La Serena.) She calls it her most intuitive activity, compares it to walking or drinking water. But when even her childhood art teacher pooh-poohed her dream of becoming a comic book artist, Rojas-Molina pursued other interests—physics, initially—perceived as more readily conducive to gainful employment, job security, financial independence. She got that bachelor's in math eventually, then a master's and a PhD.[2] She did multiple postdocs and landed a junior professorship in Germany.

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[1]*Initiated at the Mathematisches Forschungsinstitut Oberwolfach, IMAGINARY is a non-profit organization for open and interactive mathematics.*

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[2]*Her work lies in the field of mathematical physics, at the interface of analysis and probability.*

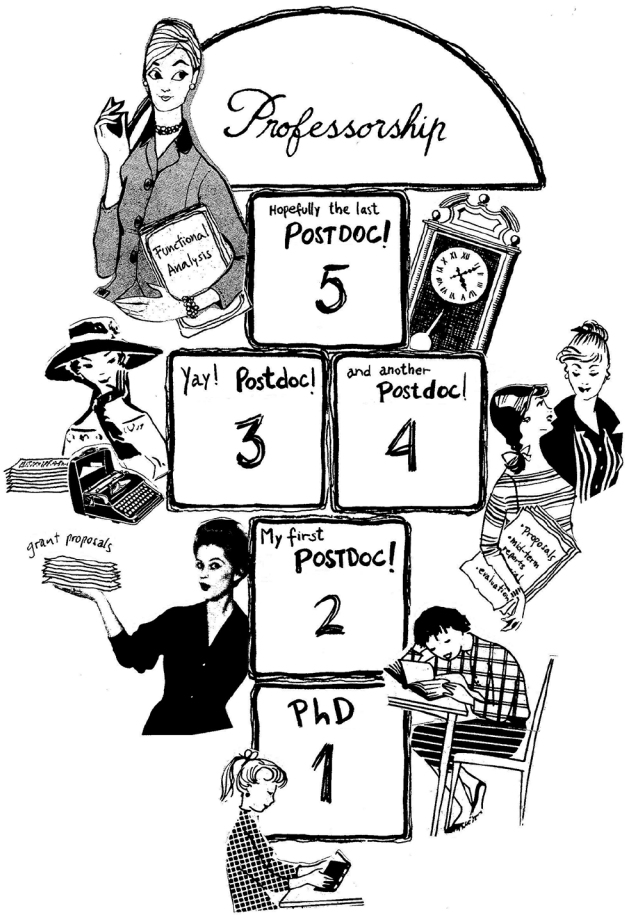

Figure 2. One of the pieces included in the July 2016 IMAGINARY exhibition.

"My whole professional life, my whole identity was built around this idea of being a mathematician and having to make it in academia," Rojas-Molina recalls.

But pursuit of mathematical success did not eradicate the impulse to draw. Rojas-Molina's illustration itch resurfaced when, during her second year as a PhD student at Université de Cergy-Pontoise, she was stuck on her research problem—and stressed. A weekly comics class proved a salutary distraction, an opportunity to play and have fun without performance anxiety.[3]

Rojas-Molina initially intended to keep her drawing and her mathematics separate, to preserve the former as a pick-me-up for when the latter got her down. Then, during her first postdoc, she launched a blog called *The RAGE of the Blackboard*[4] as a vehicle for illustrated profiles of female mathematicians. Bridging the art-math divide in this way felt right to Rojas-Molina—"having two split personalities is not the most healthy thing!" she observes—but she worried that ivory tower gatekeepers would see her art as frivolous, a time sink, a reason not to take her seriously as a mathematician. So she signed her drawings E. A. Casanova, her *abuelita*'s name.

Rojas-Molina is out and proud now—her website front-and-center identifies her as a "mathematician/illustrator"—but achieving comfort with such transparency was, she says, "a whole process." The warm reception her work received at the IMAGINARY meeting helped, as did a 2017 invitation to blog for the Heidelberg Laureate Forum (see Figure 3). Part of what prompted Rojas-Molina to leave her junior professorship at the University of Düsseldorf in 2019 for a lectureship at CY Cergy Paris University was the Paris program's awareness—and embrace—of her extracurricular activities.[5] "They knew that I draw, and they told me, 'You can draw more here,'" she remembers. "They told me, 'We know what you're doing, and it's fine with us.'"

So what *is* Rojas-Molina doing (aside from the research, teaching, and conference organizing that's standard in academe)? She's leveraging her illustrative talents to advance science communication. She blogs still, and is instrumental in the Twitter drawing challenges #mathyear and #Noethember. The latter features daily drawings on the life and work of Emmy Noether (see Figure 5), the former weekly depictions of interactions between mathematics

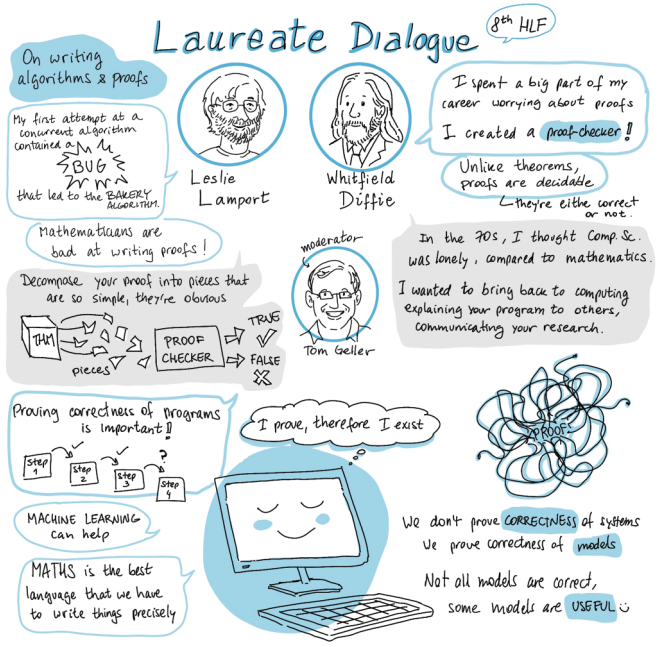

Figure 3. Rojas-Molina continues to blog for the Heidelberg Laureate Forum. The above sketchnotes were posted on September 23, 2021. Rojas-Molina gravitates toward art forms that combine pictures and text in a complementary way.

[3] *Playfulness is something Rojas-Molina would like to see more of in mathematics. Whereas trial-and-error and learning curves are par for the course in art classes, she observes in her math students a stubborn reluctance to guess or question or make mistakes.*

[4] *"The blog's title makes reference to an angry blackboard," reads the "About" page (*`https://ragebb.wordpress.com/about/`*), "but also to the RAGE Theorem, named after the mathematical physicists D. Ruelle, W. Amrein, V. Georgescu, and V. Enss."*

[5] *The move was also motivated by the solution it presented to a two-body problem. Rojas-Molina's husband is also a researcher.*

Figure 4. The illustration above appeared in the 2017 newsprint tabloid *Resist!* compiled by *New Yorker* art editor Françoise Mouly and her daughter, writer Nadja Spiegelman.

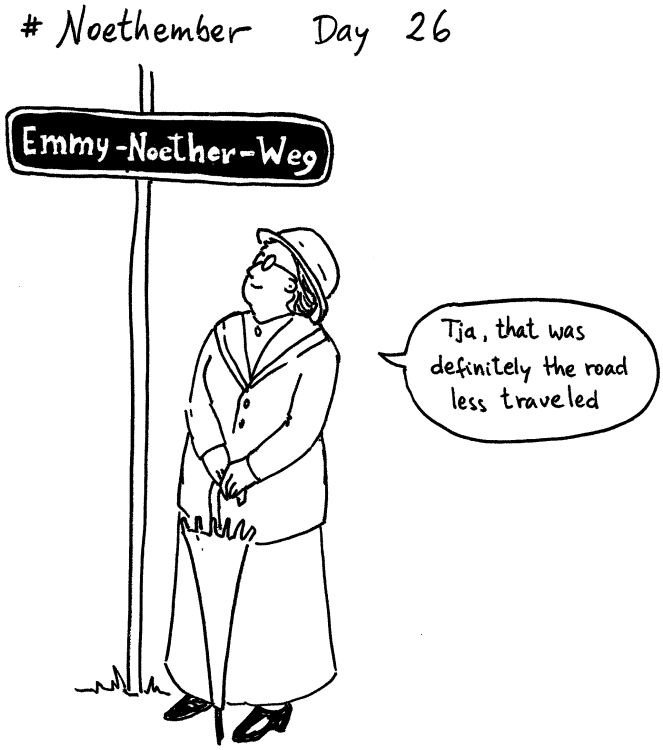

Figure 5. For more of Rojas-Molina's #Noethember offerings, see https://bit.ly/3tekzxG.

and other subjects (see Figure 6). She has illustrated a collection of biographies of Latin-American mathematicians (see https://bit.ly/3tYBHX9), contributed to an exhibition on Jean Perrin at the Institut Henri Poincaré. When we spoke in February, she was excited about a collaboration-in-progress with the University of Chile's Leslie Jiménez.

Rojas-Molina does all of this—which she hopes will help normalize mathematics as one worthy human endeavor among many—in her "off" hours: in the evening, on weekends, over holidays. Her dream job would rate science communication alongside such recognized, remunerated activities as research and teaching. Universities currently rely on scholars' willingness to do outreach in their spare time, Rojas-Molinas says, which is ultimately not sustainable. "You're really using people's time off that they could invest to rest and be more creative," she explains. While her science communication efforts figured favorably into a 2021 evaluation of her job performance, Rojas-Molina had, in balancing it all, skirted perilously close to burnout. She subsequently negotiated a scale-back. "If I didn't have a teaching reduction," she told me when we spoke in February, "I wouldn't be talking right now."

Mathematicians with creative outlets other than mathematics are out there, certainly, but too seldom fully visible in their multi-dimensionality. Rojas-Molina is determined to live her truth and, in so doing, demonstrate that not all mathematicians spend every waking moment laser-focused on mathematics.

"I don't see anyone like me," she says, "but I'm going to continue to be like this." She hopes academia will change to become "more family-friendly, more people-friendly," to

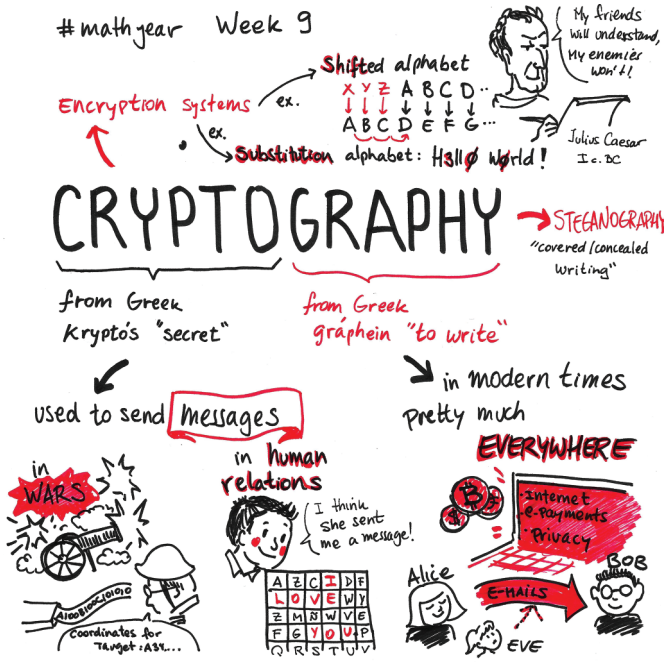

Figure 6. For more of Rojas-Molina's #mathyear illustrations, see https://bit.ly/3IgLnS5.

better facilitate a work-life balance she believes will boost retention of a more diverse workforce. In the meantime, she's doing her utmost to build within the current system a position that leverages all of her abilities. "I'm trying to do my thing in this environment," she says.

Sophia D. Merow

Credits

Figures 1–6 are courtesy of Constanza Rojas-Molina. Author photo is courtesy of Igor Tolkov.