Semail Ülgen juggles much on a daily basis. During the day, she focuses on her work as chair of industrial engineering at Antalya Bilim University in Turkey. In the evening, she cooks, cleans, and takes care of her children, ages 14, 12, and 7. After the kids go to bed, she stays up late to tackle her pure mathematics research on Finsler geometry.

When Ülgen came to the US in 1998 to attend graduate school, other mathematicians told her that “if you have kids, you cannot be a mathematician.” Ülgen proved the naysayers wrong, giving birth to her first child while she was an assistant professor at Northwestern University. But it has been a stressful journey.

Raising children while pursuing an academic career in mathematics has always been difficult, especially for mothers, who still tend to shoulder the majority of child care and housework. Mathematicians who become parents depend on the support of family, colleagues, and institutions. On top of the challenges of everyday life, parents face logistical hurdles each time they want to attend a conference, whether in person or virtually.

To help parents participate more fully in conferences, the AMS offers child care grants for the Joint Mathematics Meetings (JMM) as well as AMS Sectional Meetings. Sixty mathematicians received these grants in spring 2022. “I can’t really explain how grateful I am to the AMS,” said Ülgen, who has received grants four times for virtual meetings.

“You have to spend some time for your kid, and you have to spend time for your profession. But you have to do it in a really wise way.” With enough planning and support, balancing mathematics and family is doable, she emphasized.

Figure 1. Semail Ülgen's oldest child, Aysu, is interested in coding, artificial intelligence, and drawing. Her middle child, Aysel Suna, plays soccer, basketball, volleyball, and piano and wants to study solid state physics. Her son Ali Sina enjoys soccer, piano, swimming, and origami.

Facilitating Conference Attendance in Person and Virtually

Theresa Anderson gave birth to her first child, Lucian, in August 2018. Less than 18 months later came JMM 2020 in Denver. Lucian was still breastfeeding until shortly before the meeting, so traveling without him was not an
option. An AMS child care grant enabled Anderson, an assistant professor at Purdue University at the time, to bring her husband along as a caregiver while she attended the conference. "Without that, I would have chosen not to go," she said.

At the JMM, Anderson gave a talk on her research in harmonic analysis and went to a session on automorphic forms and $L$-functions, where she met number theorist Amita Malik. Their discussion after Malik’s talk sparked an ongoing research collaboration that might never have formed if Anderson had not traveled to Denver.

Soon afterward, the pandemic closed daycares and schools and sent conferences online, presenting a new predicament for mathematicians trying to keep up with their field while taking care of children.

"Theoretically, it’s easier to attend" online conferences, said Anton Dochtermann, the father of 7-year-old Arlo and an associate professor at Texas State University. Yet for him, "it’s almost somehow flipped, because at least when I’m physically away, it’s clear that I’m not the caregiver. […] But when you’re at home, and you’re trying to be on Zoom, it’s this in-between space where you’re not exactly 100% there, and also not 100% at the conference."

Child care grants enable attendees of virtual meetings to focus their undivided attention on mathematics. Dochtermann received grants for JMM 2022 and the 2022 Spring Western Sectional. During the weekdays of JMM, the grant went toward after-school care since Arlo’s kindergarten ended at 3 pm. During the weekend sectional, Dochtermann was able to hire a babysitter to come to the house while he attended talks either in another room or at his wife’s office. “[Paying a babysitter] $20 an hour adds up pretty fast, but it definitely helps to get a few hours” covered by a grant, he said.

In Turkey, the bulk of each AMS conference corresponded to Ülgen’s evening. Thanks to grants for JMM 2021, JMM 2022, and two AMS Sectional Meetings, she hired a babysitter to take care of her kids away from home from 4 pm until midnight.

At JMM 2021, Ülgen served as a judge for the online student poster presentations, which motivated her to organize a similar event for her department later in the year. This year, Ülgen attended talks related to non-commutative geometry, algebra, and topology, as well as sessions on applied mathematics that she found useful for her engineering research.

Anderson gave birth to her second child in spring 2021. Both boys spent the weekend with her parents during the 2022 Spring Eastern Sectional, with the grant going toward food and activities. “That money was just so helpful to make this a worthwhile experience instead of having the stress of watching children [and] attending the meeting at the same time,” she said.

Balancing Mathematics and Family

For Anderson, now at Carnegie Mellon University, the importance of child care grants extends beyond finances. The program “acknowledges what parents go through and makes it more of a norm in the mathematical community.”

Despite some (but limited) progress in creating a more inclusive environment for individuals from underrepresented communities, discussions of how raising children fits into a career in mathematics seem to lag behind, Dochtermann said. He talks frankly with collaborators and colleagues about child care duties but has found little space in the academic world for formal discussions about that time commitment. When he went up for tenure at Texas State, Dochtermann was encouraged to talk about how his work was affected by the pandemic. Yet he understood implicitly that “the fact that I had been raising a kid during that whole time, I felt, was not really something I was supposed to even mention”—even though taking care of Arlo was a central part of the pandemic’s impact on his life. Dochtermann adds that these burdens typically fall on the shoulders of women and people of color (his partner, also an academic, does a large share of
the child care at home) and hence should be part of broader discussions of equity.

Even before the pandemic, traveling to conferences as a parent of a young child was a logistical headache for Dochtermann. His wife, a professor of geography, also traveled for work. Sometimes the pair would combine trips so that one parent could watch Arlo while the other worked. Still, each had to miss conferences they would have liked to attend.

Universities in the US often do not reimburse faculty for child care costs during conferences [1]. The National Science Foundation allows money from NSF conference awards to be used for child care [2] (though not the children’s travel expenses [3])—but only if the grant recipient’s institution also allows it. As awareness grows of the financial burden on academic parents, some universities are changing their policies to make traveling with children more affordable.

When institutions support parents pursuing mathematical careers, those efforts can also contribute to their children developing an interest in mathematics. Anderson’s oldest son, for instance, looks up to her as someone in an important profession. Now almost four years old, Lucian already knows that an 8 on its side is infinity. On one occasion, completely unprompted, he brought his mother a paper triangle and correctly identified it as isosceles.

“However difficult that you think [raising children] is, it is more difficult than that,” Anderson said. “Now on the flip side, it is also more rewarding than [you think].”

Learn more about how to apply for AMS child care grants at https://www.ams.org/meetings-child-care-grants.

References
[1] Tien Nguyen, For academic parents, work travel can be costly—but some universities are stepping up their support, Science, Sept. 4, 2019. DOI: 10.1126/science.caredit.aaz3871