



# Checking in with Women Materials Scientists During a Global Pandemic: May 2020



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We have all seen the headlines. “The Coronavirus Is a Disaster for Feminism: Pandemics affect men and women differently”.<sup>1</sup> “Economics of a pandemic: In times of distress, girls and women are the biggest losers”.<sup>2</sup> “The “women’s work” of the pandemic”.<sup>3</sup> “The pandemic and the female academic: I’m curious what lockdown will reveal about the “maternal wall” that can block faculty advancement”.<sup>4</sup> “The decline of women’s research production during the coronavirus pandemic”.<sup>5</sup> This dialogue is reasonable given the structural inequalities that create additional challenges for minorities in the workplace. In academic chemistry, the numbers are clear—women remain underrepresented among the faculty ranks, accounting for roughly 20% of the total.<sup>6,7</sup> Beyond having to overcome implicit bias in career advancement from male and female colleagues alike,<sup>8</sup> research suggests women faculty perform significantly more service than men.<sup>9</sup> Furthermore, it is still the case that women, on average, take on a greater number of domestic responsibilities in the home, even when they are the primary income earners.<sup>10,11</sup> Pair this double whammy with a pandemic and it is no wonder then that we are seeing an uptick in thought pieces about how the current situation will have an outsized impact on female academics.<sup>5,12–14</sup>

But, the above is a discussion of averages. This dialogue does not consider the broad range of daily experiences of women during the pandemic. Moreover, it largely ignores the experiences of men who are primary caregivers and the experiences of queer or gender non-conforming individuals.

We recognize all academics wear many hats. Professor. Doctor. Scholar. Editor. Mentor. Teacher. Caregiver. For many, the opportunity to take on these multifaceted roles is why they chose the academic career path, and it is something they have embraced. This is the stuff that creates strong and resilient leaders, but throw a global pandemic into the mix and it is enough to tip even the most energetic, organized, focused academician past the breaking point.

We were curious about the experiences of academics, on the ground, who may be facing the pandemic with additional pressures while working from home. We’re hearing a lot about fragmented schedules, adrift graduate students, blunders in homeschooling, guilt with regards to both productivity and parenting, but also about the benefits, including more efficient meetings, no commute, home-cooked meals, game nights with friends, and spending more time with family. Everyone’s professional and personal challenges are unique, and thus so are their stories. These past many weeks have been isolating to say the least and have forced us all to adapt in ways we

previously had never considered. We hope that in sharing these stories that you will find aspects of your own story resonating, and in that find a strong sense of community.

■ **RAFFAELLA BUONSANTI, TENURE-TRACK ASSISTANT PROFESSOR, DEPARTMENT OF CHEMICAL SCIENCES AND ENGINEERING, EPFL, LAUSANNE, SWITZERLAND**

On March 12th the campus lockdown was announced, which meant going online with all the teaching and home working for the entire team. After a few hours of panic, I went for a long run, and I calmed down and found strength that I did not know I had.

I do not have a family, so everything has been much easier for me compared to colleagues caring for little ones and homeschooling. There is still loneliness and that guilty feeling for “taking a break” because you have no good excuse for it, and so I ended up working, not efficiently, 24/7 during the entire lockdown, taking care of my academic family. We have organized Zoom meetings, Zoom coffee breaks, carried out internal surveys to make sure everyone was ok, including the quiet ones, and started to write reviews so that everyone would feel productive.

On May 4th, a gradual reopening of the laboratories started, and we take turns to maintain 40% capacity, but everyone is happy to be back and there are still our writing projects for the home office. Has our “productivity” decreased because of the pandemic? All academics around the globe are facing or will face this at some point, us included and those caring for young kids or relatives more dramatically. However, this experience has brought my team closer together and has taught us that supporting each other is more important than anything else.

■ **LAURA CABANA, PROJECT MANAGER, INSTITUTE OF MATERIALS SCIENCE OF BARCELONA (ICMAB-CSIC), BARCELONA, SPAIN**

Being a Project Manager, my daily routine consists of doing computer tasks most of the time. In addition to that, I usually spend 2 h on my daily commute. Therefore, I have been

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dreaming of doing remote work for ages, but this dream was not realizable before the COVID-19 burst onto the scene. When lockdown happened, I tried to look on the bright side of this horrible situation by thinking about how better my routine was going to be. I am now able to work in comfortable clothes and have more “me time” (2 hours per day of it!). All I need is a VPN connection to my office computer and a tool for my online meetings. However, it ended up not being as perfect as I had imagined. I realized that I regularly interact with a lot more people than I thought for task-related issues. Due to not being in a common space anymore, I recognized that, not only was it less efficient, but also that I missed that personal communication. In addition, due to the high costs of renting in Barcelona, I live in a shared flat. I have no specific working space and so I am sitting long hours in an uncomfortable chair together with more people, and so it is not easy to concentrate. This environment certainly affects my productivity and underscores a clear disadvantage to these conditions in which I have to work. All in all, I think we should pull ourselves together in order to learn the lessons of this situation and try to improve our ways of working.

■ **MITA DASOG, ASSISTANT PROFESSOR,  
DALHOUSIE UNIVERSITY, HALIFAX, NOVA  
SCOTIA, CANADA**

2020 was off to a stressful start: I was juggling the every day grind of a young academic facing a ticking tenure clock while managing challenges to my physical and mental health including Type 1 diabetes and depression. The COVID-19 pandemic caused my university to shut down in mid-March. Initially, life was chaotic, but my mind was occupied with remote teaching responsibilities, overseeing a safe lab hibernation, and developing an alternative work plan for my group. After the initial few weeks, I began to really feel the effects of the shutdown. I could not easily get my blood work done or meet with medical professionals. Isolation began to take a toll, disrupting my sleep schedule, lowering my productivity, and increasing my anxiety, which affected my blood sugar levels. The shock and grief of losing a friend to COVID-19 combined with local community tragedies and the global pandemic added to the decline in my mental health and has led to my depression and diabetes feeding off each other in a vicious cycle.

I have now shifted my focus to my own well-being and that of my group, taking one day at a time. I remind myself that I am not alone, that the entire world is going through this. The lesson I have learned is to be kind to yourself and others during this time. You never know what someone else is going through.

■ **STEFANIE DEHNEN, PROFESSOR, PHILIPPS  
UNIVERSITÄT MARBURG, MARBURG, GERMANY**

What does it mean to be a female scientist in the “Times of Corona”? Well, at first place, there is no big difference—to be female or male—if the social system that you are part of is in good shape. All scientists—no matter which gender—feel the restrictions, the strength of which strongly depends on the country, county, state, city, university, or department you work in.

However, there are differences, as the social systems are not necessarily ideal regarding working women in general and mothers in particular. They have improved during the past decades, yet female scientists still represent a minority, and

women per se tend to care for unforeseen private issues much more than men. I emphasize at the same time that this is only a general statement, and does not hold for all individuals, of course. My personal situation is privileged, for example, as we have been sharing responsibilities for kids and household ever since, as three of four kids are independent already, and as our employment situation is home and dry. Yet, I can imagine the pressure that currently tantalizes young female researchers, in particular, for whom these times of social distancing means a complete shut-down of scientific activity. Not only because they cannot continue experimental work, but also because they cannot use the time at home for writing-up papers or proposals in calmness, as they are busy with homeschooling and daycare. One might regard this as a chance of getting closer to your kids instead of being at work or attending a conference somewhere else in the world, yet this should be each person’s choice, and not a must-be owing to old structures.

I hope that we learn from this exceptional situation how important it is to improve equal opportunities and gender issues wherever this is not balanced yet. Otherwise, we will lose an important part of our human resources regarding creativity, scientific brilliance, and also scientific organization capabilities where and when needed at most. A pandemic should be the right time to think about it, as it affects all women (and men!) across the globe.

■ **ANDREWS NIRMALA GRACE, PROFESSOR,  
CENTRE FOR NANOTECHNOLOGY RESEARCH,  
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VELLORE, INDIA**

The pandemic due to a tiny virus has almost brought the world to a halt, and I never had a clue that I would need to lock myself up at home. Being a professor and researcher, managing academics, research, and family has been a Herculean task. With schools closed during this lockdown, these imposed responsibilities have led me to prioritize my activities. As a mother, I am taking care of my son’s activities, homeschooling, and engaging him in fun activities, apart from the household chores. In a country like India where I live, we women are always subject to gendered responsibilities irrespective of our career status. Now that the entire family is under one roof, I am supposed to cook various delicacies to satisfy their cravings as restaurants are not reachable at this time. With the family bound work, I am facing many challenges to keep my research in the same pace as it was before the pandemic. I need to stay active with respect to research, hold online meetings with my research group, and keep them up to speed and motivated, which is truly a hardship for me at this lockdown period. When I see my fellow (men) researchers being able to manage work from home, I strongly feel that we women are left behind as we have to juggle between job and other activities. The pandemic has not only resulted in a decline of my research productivity overall due to the care taking activities, but has had a greater impact on my physical and mental health as well.

As a materials scientist, so much of my work pertaining to material synthesis and electrode fabrication is left half-completed in the lab—many of my research papers are half done and I am unable to submit them for publication. During this pandemic, I have also observed that women who are employed in the informal economy in India are struggling to maintain a balance between the job, family, and healthcare due to what I mentioned earlier—children and family care largely

falls on women. Many health workers are typically women and are facing hardships as they are risking their health in hospitals while taking care of their families. I am hearing a lot of news about domestic abuse of women during this quarantine period as abusive partners are exploiting this as an inability for women to call for help. Women have special health and psychosocial needs and this has become a challenge in this pandemic.

■ **DOROTA KOZIEJ, PROFESSOR, UNIVERSITY OF HAMBURG, HAMBURG, GERMANY**

Scientists often experience the “two-body problem”. For us, the solution was a long-distance relationship. Having a family when you live 850 km apart requires meticulous travel- and childcare-planning and support from family and friends. The pandemic with closed borders, canceled planes, and closed daycare is an overwhelming challenge for both of us.

At the same time at university, the lockdown hit me in the middle of ramping up my group activities for the new large projects, which I had already postponed due to the maternity leave. Instead of flat-out working, we moved to the home-office and remote teaching, experiments at synchrotrons were canceled, and hiring of new, international scientists is difficult. The integral parts of my home-office with a toddler became remote meetings with grad students or lecturing in the late evening and night. While it is awesome to spend extra time with my family, I manage only to keep up the most essential work activities. If the daycares stay closed, it may last even until August. My group kept enthusiasm, diligence and positive spirit during these difficult times. And this makes me proud and positive that we will make the best of it!

■ **LISA MCELWEE-WHITE, CROW PROFESSOR AND CHAIR, UNIVERSITY OF FLORIDA, GAINESVILLE, FL, USA**

I hear the voices of younger women who are raising their children while looking after their parents and I feel for them. I have been there and it is hard enough without a lockdown. I'm in a different place now but it is oddly familiar. My children are adults and my parents are gone but I'm still doing what women have always done: taking care of others, picking up responsibilities, making sure stuff gets done (often by doing it myself)...and doing laundry.

Instead of family, I'm minding a large department as its Chair during the pandemic. I've been responsible as we converted instruction for 8000 chemistry students from live to online with two business days notice and then shut down the research efforts of almost 400 people. Since then we have figured out summer instruction and then how to teach our laboratories live but socially distanced in the fall. Now we are working out how to ramp the research effort of the department back up safely. I live on Zoom and I'm tired. And, oh yes, I have a research group of 15 people who are meeting by Zoom several times a week as we write papers, discuss literature and plan for our return to the lab. If you define productivity as papers, yeah, it's down. But I've chosen to redefine success to include what I have done for others during this period and then I can call it a win.

■ **CHRISTINE THOMAS, FOX PROFESSOR AND VICE CHAIR, THE OHIO STATE UNIVERSITY, COLUMBUS, OH, USA**

There are a lot of valid reasons to be concerned that the COVID-19 pandemic will have a disproportionate effect on the research productivity. Women tend to carry a much heavier service load in their departments than their male colleagues, they tend to shoulder more of the responsibilities for childcare at home, and the responsibilities of caring for aging parents often falls on them. For some of our friends and colleagues, the “stay-at-home orders” and laboratory shutdowns have caused a crisis of boredom, isolation, and motivation issues, but for me this is certainly not the problem. As a midcareer scientist, the principal investigator of a 20-person research team, the Vice Chair of Graduate Studies for a Ph.D. program with over 250 students, a journal Associate Editor, the mother of a sassy and energetic 5-year-old, the wife of a tenure-track Assistant Professor (who, by the way, has been an amazing and supportive partner in this adventure), and the daughter of a COVID-positive resident of a long-term care facility, I seem to have found myself in the “perfect storm” of productivity-killers through a series of poorly timed life choices. I have managed to keep in contact with my students and postdocs, but I am far from the mentor they need right now. Drafts of manuscripts, thesis chapters, and proposals are piling up in my inbox faster than I can get to them, and, at most, I am able to find just a few focused hours per week to dedicate to research-related tasks. I've come to accept the fact that no matter how I try to balance my time, I am going to have to lower the standards I typically set for myself and I have to trust that others will do the same. Is my productivity going to drop during the pandemic? Absolutely. But, at the same time, I know that I am not alone in this. Every professor in the field of inorganic and/or materials chemistry, regardless of gender or career stage, is struggling right now. Each of us is now being faced with a new set of challenges that we never anticipated, and each of us will suffer losses in productivity for a variety of different reasons. We, as a community, need to recognize this and adjust our expectations accordingly.

■ **JENNY Y. YANG, ASSOCIATE PROFESSOR, UNIVERSITY OF CALIFORNIA, IRVINE, IRVINE, CA, USA**

“Hello, I am trying to manage a 2-year-old and a 4-year-old as well as my work responsibilities during this global pandemic. Please expect a delayed response.” A few days after my childcare facility closed, Prof. Lindsay Malloy (@lmalloy) tweeted the above as her new automatic email reply message. Her message resonated with me because I suddenly found myself at home with a 7-month-old, 3.5-year-old, a partner with a full time job, and a class to teach online. Now that we are 8 weeks in, I can easily say it has been the most challenging time of my career. I have been on maternity leave twice; in both cases I was able to prepare my research program in advance and was relieved of teaching and most service obligations. What made the situation more frustrating was feeling invisible while I struggled; many colleagues and administrators seemed oblivious about the predicament of parents suddenly without childcare. I am thankful that my family has stayed healthy and that we are closer than ever. But I still worry about these lost months of productivity—how will my grant renewals be viewed with so many papers still in

preparation? How will this otherwise delay my career, which has already had two childbirth interruptions?

I am fortunate to be in a stage of my career where I can absorb these setbacks—I recently earned tenure. My biggest concern for our scientific community is how we support our junior faculty members, who are already suffering lab closures at a critical time in their career. Loss of childcare or other obligations will have a disproportionate effect on some early career researchers more than others; how do we ensure everyone is evaluated fairly? I think this discussion needs to be happening at the university level and with funding agencies. I have seen a disappointing lack of recognition for our fellow community members that are suddenly struggling due to the pandemic. It is up to tenured faculty members to be vocal about making sure this massive disruption does not result in insurmountable challenges to early career researchers.

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## Notes

Views expressed in this editorial are those of the authors and not necessarily the views of the ACS.

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