GenHET Newsletter

Issue 3

October 2020

After an unusual summer break, we resume our newsletter with more news, interviews, and profiles from our community. This new issue collects many of your experiences, and the topics are as well from your input and suggestions! Your continued support is greatly appreciated, and we look forward to your future contributions to the newsletter.

As our fall season begins, and we continue to face the challenges from earlier in the year, our academic and scientific lives come with new complexities and obstacles. In this issue will discuss aspects of working from home, the intricacies of supervision and mentoring, and share perspectives from the LBGTQ+ community. We hope you enjoy it!

Alejandra C. & Elli P.
Editors of GenHET Newsletter

Keep in touch with GenHET

If you have news or other information you would like to share via the newsletter, contact us at GenHET.Admin@cern.ch. Visit us at our website genhet.web.cern.ch where you can find out more about our activities and initiatives.

Via GenHET website
Make sure you subscribe to our network here.
Via Social Media
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Mentors in HET

Our subscribers have spoken: We had several requests to discuss and collect advice regarding mentoring and supervision. Here is our first take on the subject.

A successful career in science can be more complex than just having an interesting result. In addition to the creativity, discipline, and dedication to our research, success requires dissemination, visibility, exposure, networking, among many other factors! And in this process, our mentors and supervisors play a crucial role. At different stages of our career, they offer support, encouragement, insight, advice, and information; all of these ingredients influence our opportunities, decisions, and outcomes.

In this issue, we wanted to explore different aspects of mentoring from the perspective of the mentors and supervisors. We are usually not trained to perform this role, and hence at GenHET, we are eager to collect information and experiences that are insightful and inspiring from those in our community that have excelled in this area. In this edition, we selected 3 renowned professors in HET, whose reputations as excellent mentors is irrefutable. You can read their interviews in the **ANNEX** to this newsletter. Don't miss it!

A Few Mentoring Programs in HET
The Supernova Foundation
dynaMENT
Mentoring at NCCR SwissMAP

Corona Times

As we are still living through the Covid-19 crisis, in this section we are collecting experiences, your reactions to the pandemic, and related news. If you would like to contribute, contact us by e-mail or via twitter.

News and Articles

A modest collection of articles focused on Covid-19 and academic life

McKinsey Global Institute: COVID-19 and gender equality
Nature article: career cost of COVID-19 to female researchers
Nature article: Unequal effects of the COVID-19 pandemic on scientists
World Economic Forum: Women leaders are better at fighting the pandemic

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Working from Home

Dr. Shabnam Beheshti (Math) and Dr. Costis Papageorgakis (Physics) shared their experiences and thoughts on juggling their work-childcare split. Their son just turned 3 last week! Both hold permanent positions at Queen Mary University, London, UK.

"Nursery is closed with immediate effect until further notice," said the note on the gate when we arrived on campus at 8:30 am with our son on March 17th. One of the nursery managers came to the gate to explain that a child had fallen ill with suspicious symptoms the day before and apologized that their message had not reached all parents the previous night. We quickly decided that our son would join me (SB) in Maths, happily pushing my office chair up and down the hallway as I packed my desk as quickly as I could, while my husband (CP) attended his morning meetings and wrapped things up in Physics. We had snacks, nappies, and his stroller, so things were under control for our 1-2 hours on campus. Although (thankfully) it turned out that the ill child did not have coronavirus, this was the rather rushed start of us working from home for the next 6 months, as campus closed the following week.

How has this experience been for you?

Initially, adjusting to working from home was extremely challenging; the idea of putting in a full workday was immediately gone. Our little guy, like any child at 2.5 years old, could find 50 ways to kill himself in under a minute, so concentrating on anything else was out of the question. It was frustrating and stressful for both of us to keep up with the dual demands of work and childcare, but we eventually found a rhythm and began to enjoy our lockdown time more and more. Watching our son develop and reach different milestones we would have otherwise missed reminded us how lucky we were to have this time together as well as to work in departments that were very understanding about the circumstances of their staff.

What was/is the biggest challenge?

We both agree that the biggest challenges were time management and adjusting our expectations on what could be accomplished with the hours in the day. We did worry about letting colleagues down, but also became more relaxed with our closer collaborators about having our son drop by to say hi and check out what was happening. Interestingly, for the first two months, in addition to our own activities, our son had MS Team meetings with his nursery teachers and friends (basically chaos in online form) and weekly lesson plans with which we had to keep up too.

Another big challenge we are facing more recently is the emotional and operational preparation for a return to campus-based work/nursery after so many months together in the house. While

we are relieved to be able to have continuous hours to concentrate and finally get things done, we are also feeling a sense of loss as this bonding time comes to a close.

It wouldn't be an understatement to say that most people juggling family and work are completely exhausted going into the autumn semester. Supporting each other and coping collectively may also be a challenge for the upcoming year.

What are your coping mechanisms?

On both work and family fronts, it has really felt like an endurance race; being flexible about **everything** was perhaps our best coping mechanism. One thing we ended up doing early on during lockdown was having an end-of-week catch up to stagger all upcoming meetings and assess what worked and what didn't. We tried new schedules weekly, which helped us to find what would stick for all three of us. This changed dynamically as our son developed more speaking and playing skills and involved, for example, moving from half-day work/care swaps to 2-hour rotations so that both of us would have at least 4 hours of time during the "9-5" workday, while also staying fresh for our increasingly active little one. We tried to make up the remaining work hours in the evenings and weekends, eventually settling on a 6-day work week with one day to recuperate and do something different as a family.

Keeping our son stimulated after the lessons from nursery finished also proved challenging as the months stretched on, especially with the local library being closed. Spending plenty of time in our back garden and going for nature/car-spotting walks around the neighborhood helped tremendously; we've dug a lot of little holes, rescued many snails, and managed even to sprout a lunchtime avocado seed. We tried hard to avoid screen time, introducing new books (and reintroducing old toys) at regular intervals, which worked for a good while. After about 5 months, though, we broke down and made Saturday afternoons our movie time; now it has become our special thing to do on weekends.

Anything else you think the readers might want to know?

I don't think either of us expected to hear our own work-at-home lines get used back at us: "*Mommy, Daddy, I have to go and talk to my students now*," he says, leaving the room…

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LGBTQI+

Collecting personal experiences on LGBTQI+ experience in HET.

LGBT+ Physicists
LGBT @ APS.org

The GenHET working group is devoted to gender issues and its intersectionality with sexuality, religion, class, race, ethnicity, and disability, among other factors. Our focus in this section is to discuss aspects related to LGBTQI+ in the high energy theory community. These issues tend to not be acknowledged, nor shared in our scientific interactions, and this is our effort to change our culture in a way that includes and represents respectfully different members of our science community.

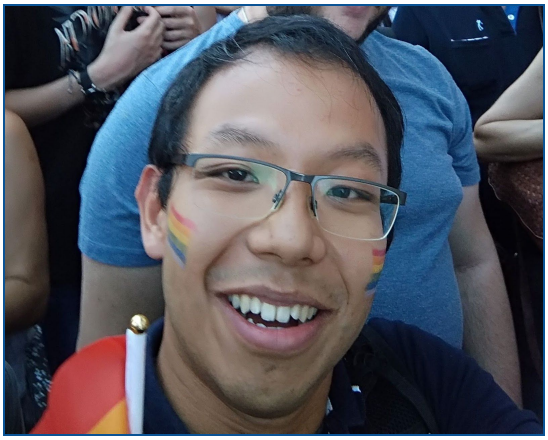
We are always open to hear and include in this newsletter different perspectives and experiences. If you would like to share with us your story and thoughts, please contact us! It would also be possible to contribute anonymously.

In this issue we are very excited to share with you the stories of our friend and colleague, Dr. Noppadol Mekareeya. Thank you Noppi!

LGBTQ and the physics community

Dr. Noppadol Mekareeya is a researcher, INFN, Milano-Bicocca

As a theoretical physicist and a member of the LGBTQ community, I would like to use this opportunity to reflect some LGBTQ issues that my colleagues and I have encountered over the years in our careers. It is typical for physicists to spend around 5 to 12 years of their careers after their PhD conducting research as postdoctoral researchers. The contract of each postdoctoral position usually lasts for 2 or 3 years. During this period of time, this may involve moving between different countries, or sometimes even different continents. One of the major problems is that diverse countries have different legal status of the LGBTQ rights, including recognition of civil partnerships or same-sex marriage. As a result, the benefits for same-sex couples may be lower, or may not exist at all, in comparison to those for different-sex couples in different countries. Moreover, if a same-sex couple chooses to adopt a child, the situation can get even more complicated. This is due to the fact that, in certain countries, the civil partnership (if it exists) may not grant the status of the same-sex couple as the legal parents of the adopted child. In this sense, the civil partnership can be different from the different-sex marriage on the issue of the adoption. Moving from countries to countries, LGBTQ families would encounter



such difficulties. Apart from these issues, it may not be so simple to find an LGBTQ supporting group in a workplace or, worse, one may encounter homophobia or other prejudice. During my three years working as a CERN fellow in the Theory Group, I had a great opportunity to work with an informal network, known as the LGBTQ CERN, which organised many events that promoted the recognition of the LGBTQ members in the workplace. It was also there that I encountered a homophobic behaviour at CERN, namely the vandalism of several posters of the network that have been put in permitted public space as well as my own office door. I would like to emphasise that the problems I mentioned are really there for the LGBTQ physicists. However, sadly, they are rarely acknowledged and spoken out in public. I hope that this short article helps promote awareness of the issues that may lead to resolution in the future.

A brief biography: Noppadol Mekareeya is a researcher with a permanent contract at the National Institute for Nuclear Physics (INFN), section Milano-Bicocca. His field of research is theoretical high-energy physics, focusing on quantum field theories and string theory. After finishing his PhD at Imperial College London, he has been a postdoctoral researcher at the Max Planck Institute for Physics in Munich for two years, a fellow at CERN for three years, and a postdoctoral researcher at the University of Milano-Bicocca for ten months.

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GenHET members in the spotlight, May 2020

If you have a suggestion for a GenHET member to be included in our spotlight section, please email us at GenHET.Admin@cern.ch.

Fellowships & Grants

Congratulations to Dr Eleni Vryonidou for her Royal Society University Research Fellowship "Probing New Physics at the Large Hadron Collider: the Effective Field Theory approach" with the University of Glasgow.

Congratulations also to the women receiving an ERC starting grant in the panel PE2! The successful scientists are: Birgitta Bernhardt (Technische Universität Graz), Francesca Bellini (Technische Universität München), Maria Ubiali (University of Cambridge), and Eleni Vryonidou (Università di Bologna).

New Positions

Congratulations to Lina Niceb (UC Irvine) for her new assistant professor appointment at MIT! Congratulations to Katelin Schutz (MIT) for her new assistant professor appointment at McGill University! Katelin also received the APS Sakurai Dissertation Award in 2020!

Awards & Prizes

We are very happy to highlight the woman that received the Breakthrough Prize in the areas of physics and mathematics, announced on September 10, 2020. Our congratulations to:

2021 New Horizons in Physics Prize

Netta Engelhardt, MIT

Tracy Slatyer, MIT

Tien-Tien Yu, University of Oregon

2021 Maryam Mirzakhani New Frontiers Prize

Nina Holden, ETH Zurich

Urmila Mahadev, Caltech

Lisa Piccirillo, MIT

ICTP awarded the 2020 Ramanujan Prize for Young Mathematicians from Developing Countries to Carolina Araujo (IMPA, Brazil). Congratulations!

The Nobel Prize in Physics 2020! We are very excited to highlight Andrea Ghez (UCLA) for her Nobel prize. Prize motivation: "for the discovery of a supermassive compact object at the centre of our galaxy." Prize share: ¼.

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News & Announcements

Some interesting articles, news, and other information recommended by members of GenHET

Books

The Gender-Sensitive University: A Contradiction in Terms?
X+Y: A Mathematician's Manifesto for Rethinking Gender

News & Media

Myriam Sarachik Profile in NY Times
Obituary for Joan Feynmann

Conferences

I, Scientist Conference, September 2020
ACT on Gender Events, October 2020
Sex and Gender Dimension in Frontier Research, November 2020

Related Networks and Working Groups

Gender in Physics at Weizmann Institute of Physics
Equal Opportunities at SwissMAP
Change Now: Calls to Action from Black Scientists at Fermilab

GenHET @ Strings 2020 and LAWGH

During this summer we organized two diversity sessions at: Strings 2020 and LAWGH. We thank the participants for their involvement in the sessions: our discussions and conversations are valued and highly appreciated!

And check out this international research project aimed at understanding how parenthood affects the career advancement of people working in STEMM fields: Mothers in Science. They have a survey related to parenthood and career progression in STEMM which you can fill here: SURVEY.

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HET Seminars and Conferences Online

Stay connected to your research community via online seminars series.

Physics in the time of Coronavirus, Google calendar
CERN-TH Virtual Activities
Nordic Remote HET Seminars
HoloTube Seminars on Applied AdS/CFT
Theory Web Seminars
ResearchSeminars.org
Inspire Seminars
BSM Pandemic

Meet the GenHET working group: Dr. Alessandra Gnecchi, Postdoctoral Researcher, MPI Munich.

Every issue of the newsletter will include a short profile of one of our working group members.

I grew up in a small, quiet town in the Northern part of Italy. Even though my elementary school counted fewer than 100 children, we were all encouraged to read many books and expand our knowledge. So, by the end of it, I was sure I wanted to follow Marie Curie's steps investigating the fundamental nature of things. I was struck by her figure: how she stood out in a male environment, how committed she was to help injured soldiers during WWII by running around Paris with X-ray machines that had only just been discovered. With the support of my family, I followed my dream and I received a degree in Physics from the University of Pisa and a PhD from Padua University, under the supervision of Gianguido Dall'Agata.

I have been a postdoctoral researcher at Utrecht University, KU Leuven, and CERN, and I am moving to another position at Max Planck Institute in Munich. In my work, I study supersymmetric geometries, and in particular supersymmetric black holes. Most of my research consists of understanding the properties of vacua of supergravity and string theory, through the

analysis of the extremization equations they are subject to. These equations, thanks to the AdS/CFT holographic duality, can also reveal properties of dual superconformal field theories in various dimensions, providing an additional tool to study exotic strongly coupled conformal theories discovered through brane engineering. One of the problems that fascinates me most is the identification of the fundamental principles of quantum gravity. Their signature can appear in properties of string theory solutions, e.g. related to the Weak Gravity Conjecture, or by mapping the gravitational system to a CFT dual setup; there, interesting questions arise that link our study of quantum gravity to problems in quantum information.

Moving from a little village and the safe guidance of my parents to navigate the academic world alone has been a long journey that has helped me grow as a person as much as it has taught me about physics. Thanks to the example of great scientists who are also devoted to creating a fair environment in academia, I became aware of the social biases of the society I grew up in and how they were affecting my view of the academic work environment, as well the world itself. It also made me understand how privileged I have been to be able to follow my scientific passion. I believe being an experienced researcher also comes with the responsibility to encourage and support younger students in realizing their potential as scientists and have an enriching academic life experience. This, however, requires awareness of my personal biases and constant attention to the obstacles and disadvantages that young students or scientists may face daily.

Theoretical physics is a marvelous subject: scientists are discovering the fundamental nature of the Universe, unraveling its very language. In my career, I have been studying black holes and their fundamental degrees of freedom: what is happening at the inner core of a black hole? Are physics' well-known paradigms too limited to capture the quantum nature of our Universe and, eventually, gravity? Approaching these fascinating problems requires commitment and effort, and many unresolved questions are waiting for young minds to join in the work of the theoretical physics community.

I believe an important way to support any student who is passionate about theoretical physics is to believe in them, offering concrete advice and mentoring from the early stages of their career. I am committed to pushing for changes in the academic environment so that it will eventually offer the same chance of participating in research to every student regardless of their sex, race, and socioeconomic status.

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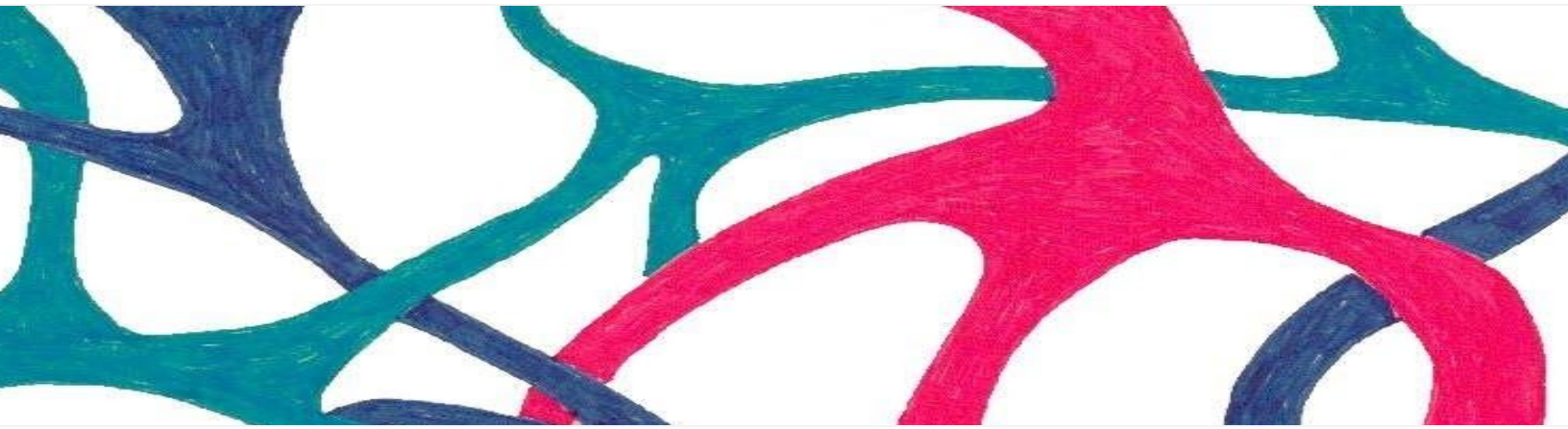

Mentoring in HET: Interviews

In this annex, we collect the three interviews regarding mentoring and supervision by prominent figures in high energy theory. We are extremely grateful to

Professor Luigi Del Debbio, University of Edinburgh
Professor Andrew Strominger, Harvard University
Professor Anne Taormina, Durham University

for their valuable contribution to this section! Each of them has an outstanding trajectory and record when it comes to mentoring and supervision. We thank them for sharing with us their insight, experience, and wisdom on this subject! The interviews were either carried out by email or virtually via Zoom.

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Professor Luigi Del Debbio, University of Edinburgh (website)

Are you proactive in any way about recruitment? At the PhD or Postdoc level? The context: A common scapegoat we hear in this regard is that the pool of applicants is not diverse, so it is no-ones fault that their groups are homogenous, and in particular male-dominated.

Yes, absolutely! Because the pool of applicants is not diverse (mostly white males) we need to be proactive to achieve diversity (be it for gender or race). We do look specifically for good candidates from underrepresented groups, encourage them to apply well in advance of deadlines, provide help with applications, and logistic problems: all the things that normally skew the playing field. When I think about it, I have to admit that it is harder for me to be proactive at the level of PhD recruitment. I manage to scrutinise carefully our own undergraduate students and encourage them to apply, but the bulk of the candidates are often completely unknown and it becomes harder to spot opportunities. I think I should work harder when sifting through applications. Having little time for this process of scrutiny is likely to reinforce unconscious bias.

A feeling of belonging, of having a voice, tends to be an important way to gain confidence and prominence in our field. What do you think is the role of the supervisor to empower students? Do you play an active role in giving students confidence? And if so, how?

This is a difficult one… I think students need to 'own' their projects, they need to develop a feeling that they are working on 'their' project — not on the supervisor's project. (Which is not a polite way of saying that I ignore my students!) Some of my students have become very rapidly trustworthy collaborators, leading their projects almost independently of my busy schedule, and thereby growing in confidence. Whether I manage to give them confidence… I honestly don't know. I give them a lot of responsibility and they usually try to respond. Each student is different, as you can imagine there isn't a magic recipe that will work in all cases. So we need to be constantly aware of how things are going, remember that we deal with complex, intelligent human beings. Very challenging. Sometimes it works beautifully, sometimes it doesn't. I feel this is also true for postdocs — maybe even more so.

One of the members of our network was particularly interested in the supervision of mid-career researchers, for example mentoring an assistant professor that is transitioning to leading larger groups, applying for large grants, etc. This is a topic less discussed, and the guidelines for more senior faculty are not always so clear. We find this relevant to avoid having, e.g., women getting stuck at mid-level and not raised to full professor in some systems. Do you have any advice on mentoring in this case?

It's impossible to give guidelines for senior faculty… this should be evident to anyone who has ever attended a faculty meeting!

Having said that, there are a few things that can be tried. Intellectual input is reasonably democratic: a good idea will come from anyone. Having a very horizontal structure in a group, where members share tasks, is very helpful, albeit challenging. When possible it is good to be able to apply for several smaller grants, rather than monolithic grants spearheaded by senior faculty. When this is not possible, let the less senior members of a group be PIs on grants. Prioritise PhD positions for new staff joining the group.

Encourage junior faculty to engage gradually with admin tasks. The sooner they learn the mechanisms of the institutions they belong to, the sooner they will be able to progress inside these institutions. Finding the balance between research, teaching, and admin is a challenging task for newly-appointed staff members. A gentle start in a supportive environment is a good way to get to know the system. Talk to junior staff. More importantly, listen to junior staff.

When it comes specifically to women, we have a policy in Edinburgh that staff returning from maternity leave have a buy-out from teaching for one year. It proved very useful for staff to gather momentum in their research activity, apply for grants, etc. Small statistics of course, but it seems to work.

In your early days as a supervisor, were there aspects of the role that you were nervous or worried about? All of them!
Did you seek advice from more senior members, or had a model of supervision you were trying to follow? A mix of both, and several models I was trying to avoid following.
If you had to advise a young version of you, what would you say?
As I said above, the only advice that comes to my mind is to try to be constantly aware of the progress and the difficulties of the students. Engage with them.

Is there something we are obviously not asking you and missing?
"No teaching has ever been taught
[…]
here at Fuyuan we don't restrain the ox".
Shih-Wu — Buddhist monk, 14th century.
OR: The above are just a few ideas that came to my mind. If they push other people to think along these lines, most likely getting to different conclusions, then we are probably making progress.

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Professor Andrew Strominger, Harvard University (website)

This interview was performed over Zoom on September 7, 2020. The transcription here includes the main parts of the conversation. Edits were done to provide clarity and context.

Andy has supervised several (many!) PhD and postdocs that are currently leaders in our field. This list is impressive for many reasons: scientific scope and impact, and incredibly diverse group of people (e.g. in terms of gender, nationality, ethnicity, among other factors). When we asked him for an interview our questions were targeted to see if we can figure out the secret behind his success, and learn from it.

The first part of our conversation regarded recruitment and hiring. And in particular aspects that affect the evaluation and judgment of applicants:

Perhaps I read applications and people differently than some others do. I think I have done well mentoring women and am very proud of it. I don't know exactly what it is that I have done that worked so well. But surely part of it is having four daughters. I learned a lot from them about how women are viewed in the world and how they express themselves. In particular, I saw a lot of discrimination already when they were in elementary school which really shocked and outraged me. Although all of my daughters have prospered, it made me more sensitive to the little ways people sometimes talk about women that are slight put-downs. Different adjectives are used for women and men. For example, studies have shown the word "brilliant" is often used for men but rarely for women, for which "super-smart" is more common. I have learned to filter those biases out when I read recommendation letters.

Women are kept back at every stage in life in subtle and different ways. A certain kind of aggressive male behavior (not that there aren't aggressive women) is sometimes practically identified with intelligence. It is expected that if you are intelligent you will behave in that aggressive way. If you don't --if you just sit in the back, think and don't feel comfortable speaking up-- then you are not intelligent. And maybe this is stereotyping on my part, but I have noticed that some of the women that I have worked with will often wait a while before they say what they think, while some men will jump in a kind of race to say it first and be the "smartest" and draw attention. Those are just social behaviors, not traits of intelligence. The ones who do wait longer to speak often have something very interesting to say when they finally do. I have been able to recognize that the skills that it takes to do theoretical physics are expressed very differently by different people.

When I look at the applications I do take gender into account insofar as it affects the way letters of recommendation are phrased. And I think many people don't. So that might sometimes be perceived

as my unduly favoring women, but I don't think it is. Many people can't see which women are good, so I am able to recruit better women to my group because other people aren't figuring it out. This has certainly worked to my advantage! In general many are unable to see that there is a difference between how a talented woman expresses themselves and how a talented man expressed themselves. This applies at all levels: grad students, postdocs, and faculty.

Our conversation then focused on daily interactions with students and the group dynamics…

In my opinion, in theoretical physics, we suffer from the "Einstein-Newton paradigm" that physics is done by the lone geniuses. You may hear people say things that all the progress in string theory in the last 4 decades came from 30 people and the rest are irrelevant. I think that's completely wrong: these 30 people on their own, without the exchange of ideas with the whole community, would have done very little. The reason I have so many students and postdocs is to foster the exchange of ideas: it's invigorating to me and it's invigorating to them. It's definitely work but I like them and it's fun.

Another component of my interactions with students is to support their self-confidence. When they do something good, I make sure to let them know!

My group at Harvard is now half women. There is a snowball effect. Women feel comfortable when they see other women around in the group who feel comfortable. So that's been a huge benefit to us in recruiting extraordinarily talented women.

What advice would you give to a young supervisor?

I'd be hesitant to give advice because everybody has a different style. There are some people who just really want to primarily work by themselves. They shouldn't be told to do something different. We need every different style to make progress in our challenging field.

What I would tell young people is not to listen to anybody else and to think for themselves what is good physics and what isn't. I would encourage them to look hard at the social norms which I would argue misidentify talent (in men vs women): just to think about it.

Do you think you had a particularly good supervisor (forming your style of supervision)?

My thesis supervisor was Roman Jackiw. He was a great supervisor scientifically, gave me great problems, and of course is an extraordinary scientist himself. I started working on quantum gravity as a graduate student. He advised me not to, saying I would never get a job if I did. A few years ago, he introduced me for an MIT colloquium and graciously said it was a good thing I hadn't listened to him!

But he was also a pretty old-school tough advisor. He said things to me like, “How can you possibly be so stupid?” He never said anything encouraging, never told me I was doing a good job. Until one day, he said, “I think you’ve done enough for your thesis; I’m going to get you a good job .” which he’d did a few days later at IAS. I didn’t even apply. It was actually the first I knew he thought highly of me. But underneath his sometimes gruff exterior, he is a deeply nice and caring man. I really like and am grateful to him.

And this turned into a discussion about how our field evolved since then, how cultures and behaviors are changing…

You know there was a whole machismo tough guy thing going on then. When I was a grad student, seminars were vicious. Every institution would have an alpha male who would often attack whoever showed up to give a seminar. There was a cultural sea change when string theory came along. Though far from perfect, it’s much better now than it was! Still, it is not a culture that has proven welcoming to women.

There is a balance we should consider. Although, in that earlier period, people were more often obnoxious and rude in seminars, they truly cared about the science and would listen in the end. And indeed great science came out of it. I remember in those days feeling good when I got attacked, because I knew that it meant that my work was interesting. So there is a good part of the aggressive behavior, it’s not without merit. We shouldn’t let wrong assertions in seminars pass by out of politeness. I think the challenge to our community is to find an intermediate ground between always being nice and polite, recognizing a more diverse set of prior assumptions about what is and what isn’t good behavior, without compromising what is really important to us: namely finding the truth about nature.

Finally, some closing remarks about what mentoring and supervision entails:

The main thing that all of us want to do is to find a really good question and solve it, that’s our business. But also closely related to that having students, having postdocs being connected with the world that we have created and interacting with them intellectually over decades that it is just an incredibly satisfying and fulfilling experience who’s benefited you rip later on and I think the importance of that of creating a community of scholars with substantial intellectual exchanges is often underestimated. How important it is and how satisfying it is!

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Professor Anne Taormina, Durham University (website)

Are you proactive in any way about recruitment? At the PhD or Postdoc level? The context: A common scapegoat we hear in this regard is that the pool of applicants is not diverse, so it is no-one's fault that their groups are homogenous, and in particular male-dominated.

As far as PhD student recruitment is concerned, we are proactive on two fronts.

(i) We encourage our own undergraduate students to apply. In the UK, each final year undergraduate must work on a year-long project, worth a third of the final year credits. The topics on offer spread the expertise of the whole department, and this is a golden opportunity to interest students in exciting aspects of theoretical particle physics in particular. It is important to phrase a project in a way that provides some structure but also makes clear that the student may take the project in a direction they are curious about. Weekly or bi-weekly meetings with project students provide an excellent opportunity to nurture interest and boost confidence and this results each year on PhD applications from students who had not envisaged to embark on a PhD prior to the project work. This helps female students who tend to lack confidence more often. Also, the students who achieve high scores in traditional exams are not necessarily cut for research, and vice versa. I have witnessed both types, across gender, during my career.

(ii) Within our Department, we have been able to recruit two women theoretical physicists at assistant professor level this year, bringing the total number of women in that discipline to five, i.e. to about 20% in our research group. We hope to continue this trend, as an increased number of role models for potential female graduate students is a positive factor in recruitment.

It is true that the pool of PhD applicants in our Theoretical Physics group is far from diverse, and we take the time to invite applicants for an informal chat with members of the group, in person whenever possible, to complement their written CV. This exercise definitely nuances judgments made on the CV alone and has been beneficial for applicants who lack confidence but are nevertheless talented, many of them being young women. We think it is well worth the effort, which spreads over several weeks each year.

It seems obvious to me that unless we attract more young women to a PhD program, the lack of diversity when it comes to Postdoctoral and Faculty recruitment will subsist.

We face a big challenge at the postdoctoral level because our field remains extremely competitive and it does not usually offer stability before at least two postdoctoral positions, usually held in different countries, with a high level of uncertainty beyond the two- or three- year horizon. This impacts drastically on plans to start a family for instance and a number of young women are not prepared to postpone maternity beyond their late 20's or live apart from their partners for extended periods of time.

GenHET Newsletter
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A feeling of belonging, of having a voice, tends to be an important way to gain confidence and prominence in our field. What do you think is the role of the supervisor to empower students? Do you play an active role in giving students confidence? And if so, how?

I think it is important to encourage PhD students to interact scientifically with their peers within their department but also at the national and international level. This starts with allowing them to present the broader context and motivation of their research at journal clubs attended by staff and students within their department. Honest and constructive feedback on such presentations is gradually building up confidence, to the point they are ready to attend regional, national, or international schools or workshops where there are opportunities for them to talk about their results. I always feel a significant threshold has been reached when my students stand up and challenge some of the statements I make.
These instances are usually the start of a genuinely productive research phase, which undoubtedly boosts the morale of students and supervisors alike.

One of the members of our network was particularly interested in the supervision of mid-career researchers, for example mentoring an assistant professor that is transitioning to leading larger groups, applying for large grants, etc. This is a topic less discussed, and the guidelines for more senior faculty are not always so clear. We find this relevant to avoid having, e.g., women getting stuck at mid-level and do not raise to full professor in some systems. Do you have any advice on mentoring in this case?

The problem of women not progressing to full professor is a very delicate one. There are different scenarios, and each requires a slightly different approach.

Scenario one: the academic staff in question is dissatisfied with the situation but actively seeks help. A mentor should first listen carefully to the mentee to fully appreciate the cause of their dissatisfaction. Following this conversation, the mentor should aim at providing an objective assessment on how well the CV is aligned with the criteria for promotion. If some areas could benefit from being strengthened, the mentor should devise a strategy in partnership with the mentee in order to reinforce those areas over a period of one year or so and offer another conversation within six months to adjust the strategy if need be. In some very unfortunate situations, the CV is aligned with the promotion criteria, but there is negative publicity from a more senior academic blocking the process. The mentor should then alert the Head of Department or the Dean of Faculty to the problem, as there may be an alternative mechanism for processing promotion applications. In any case, a mentor should be as encouraging as possible and be prepared to help the mentee achieve further goals, for instance in offering help in the construction of a substantial grant application, or in suggesting a higher degree of citizenship within the department. In some cases, encouraging the mentee to apply for a full professor position elsewhere might be the best recommendation.

Scenario two: the academic staff in question is not seeking promotion as they are satisfied by the level

of responsibilities they have and consider their performance in research and teaching is not worthy of promotion. In other words, they 'cruise along' at their level of promotion and have achieved a work-life balance. A mentor still has a role to play, to ensure that the satisfaction level does not drop over the years, but also that underperformance does not creep up. Occasional conversations about research projects and future grant applications could be beneficial in such a scenario.

In my institution, the system of promotion has recently changed, in an effort to avoid situations like the ones addressed above: everybody's CV is scrutinised by a gender-diverse departmental promotion committee consisting of the Head of Department, the Director of Education and the Director of Research as well as senior academics drawn from all the disciplines researched in the Department, who recommend an application for promotion when the criteria for promotion are met, and who give constructive feedback to all the colleagues who are not yet ready or who do not wish be put forward. Furthermore, if someone is unhappy with that committee decision of not recommending promotion, they have the possibility to put an application forward directly to the faculty-level promotion committee.

In your early days as a supervisor, were there aspects of the role that you were nervous or worried about? Did you seek advice from more senior members, or had a model of supervision you were trying to follow? If you had to advise a young version of you, what would you say?

Of course I was nervous about supervision in my early days as a supervisor, but I still am now! This is because each PhD student has their own personality and mode of operation when it comes to research, and the supervisor has to develop a certain amount of flexibility to ensure the student realises their full potential. The big unknown at the beginning of a supervision is how the student will react to the research project offered, and how quickly progress will be made, given the length of PhD studies in the UK is three and a half years on average.

I certainly listened to senior colleagues reflecting on their supervision style, but quickly understood that there is no `one type supervision fits all'. The task also depends on whether there is a cohort of students studying the same broad topic (for instance, string theory) within your department, or whether there is only one. In the latter case, a supervisor must ensure the student does not become terribly isolated, especially in our field. Therefore sending them to regional and national conferences or workshops and encouraging them to establish links with their peers is a must.

As for advice to a younger version of myself, apart from encouraging critical thinking and independence, I would say that a degree of stubbornness in research is good, but too much of it is often counterproductive, and one should aim at developing a sense of when it is time to deviate from the initial direction of travel.