CALIPER
Gender Equality in STEM Research

Linking Research & Innovation for Gender Equality

Role Model Interview

Dr Virginia Petre, Polytechnic University of Bucharest

As part of the CALIPER project, we are conducting a series of interviews with inspirational women who work in STEM research and innovation. We explore what motivated them to choose their career, their experiences and the barriers that they faced.

Virginia Petre (née Vasile) graduated in 2014 under the Double Diploma Program between ENSAM, Ecole des Arts et Metiers Paristech and University Politehnica of Bucharest, where she currently works as a researcher and lecturer in the Faculty of Energy Engineering.

She was a finalist at the final of the 'My Thesis in 180 Seconds' international competition and has been a strong voice in the R&D community for gender equality.

You can watch the full video of the interview on the CALIPER website.

Dr Virginia Petre (left) and Oana Ionescu (right)

Tell us a little about the career you chose. Why engineering and why research?

"I wanted to do this ever since I was in high school. It's very simple, I loved mathematics, and I loved physics and I never thought, not for one second, that I might do anything else. I have always wanted to work in science – not necessarily research, but science, ever since I was in high school. I discovered the passion for research and for teaching over the years. And then, what choice could I have possibly made, other than the Politehnica University in Bucharest? The tough decision for me was to choose between the Faculty of Electronics and the Faculty of Energetics. That was a very difficult decision to make, but I had a stronger attraction to energetics and I decided at the last minute to go for it and apply at the Faculty of Energetics! And even after ten years, maybe even more, I am still here."

Were there certain people in your life who inspired you, who helped you choose this career?

"Of course there were, not one, not two, not three, but many, aside from family, friends, and people very close to me. First and foremost, I would like to mention my dear physics teacher, who helped me with getting ready for university and was there for me for more than just one year, helping me prepare and who "opened my eyes" to reality, to the things that we can perceive physically. And then there is my mentor, my true inspiration, the professor that was by my side in these ten years of study and who was also the supervisor of my PhD thesis, while also guiding me towards this path which I am still pursuing today and to whom I am very grateful."

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Let's talk a little bit about your career, about those important moments and milestones that you achieved and that made you who you are today. What can you tell us?

"Well, I think I should start with the year 2014. This was the year in which I graduated from the double degree programme and I think it is a year worth mentioning because it is closely connected to today's topic, because it's the year in which I obtained both my undergraduate as well as my master's degree from the Politehnica University in Bucharest, but also from the university you mentioned previously, École des Arts et Métiers ParisTech, one of the top five universities in France. I started this programme when I was in my second year of university. I applied for this programme and it was the first time the Faculty of Energetics in the Politehnica University Bucharest had sent students to France as part of this double degree programme. And why is this programme so important for today's topic? Because we were eight Romanian students participating in this double degree programme, and I was the only girl. So we were eight selected at national level, and I was the only girl. And after that came several years of simultaneous studies, because I was one year in Romania, one year in France, permanently until 2014. I graduated in 2014 and I worked in the private sector for a while and then I started my doctoral studies. 2019 was the year in which I obtained my PhD, which is also a double degree. It is a degree awarded both by the Politehnica University, but also by the Institute of Applied Sciences in Lyon. It was also a double degree programme, which lasted for five years, and I finally obtained this double PhD degree, recognized both in our country and in theirs.

In 2018 I participated in a competition, mentioned by you at the beginning of this discussion, a competition which initially seemed rather simple, but now when I look back I realise that was not the case. Back then, things seemed completely different to me. It was a competition that lasted for a whole year. The main aim was to be able to present in 180 seconds, in French, what your doctoral thesis is about, what kind of research you are conducting and how it impacts a person's everyday life and society as a whole. And all this using a language that is easy to understand by people in any field. So, you are not necessarily addressing people from science, you are not necessarily addressing people doing research or working in science and related fields, but everyone. So, everyone listening to you should be able to understand why you are doing this research, all explained in French. You are disqualified if you exceed this time limit, so it was rather delicate. I worked with someone from the University of Arts, who helped me very much. The final competition required much more preparation than initial competitions. Local phase, city phase and then national phase because this competition was held in Belgium and there were many countries that participated. The final took place on the Voice of Belgium stage, with an audience of over 2000 people. It was quite high pressure. I remember being shocked the first time I was on stage. I consider this a "high achievement".

Of course, among other important things that happened before 2022, I would like to mention that in 2020 I managed to make the transition from research assistant to university lecturer and now I teach a subject that is very dear to me, and which is also the subject of my doctoral studies, the transfer of heat and mass. And for me this is very important."

I assume, this is where this voice of yours comes from, this strong voice on gender equality in research. Was this your inspiration?

"I think this was the climax. Everything started in the first year of university. Almost everybody knows there is this misconception regarding girls attending polytechnics or girls in science, girls pursuing engineering. This misconception was very strong when I was in my first year and I somehow was impacted by it without meaning to be, and without anyone meaning for that to happen. Because in a group of about 20 people, most of the groups had 20, 25, 27 people, there were only three girls. So practically, there was inequality from the start. There was quite a big difference between boys and girls in terms of numbers, and inevitably you feel this inequality without meaning to. You feel this pressure, it is more than a challenge, it is a pressure you feel permanently to demonstrate that you also belong here and prove that you can do the same things as your male peers.

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This pressure became even greater when I arrived in France and in my mind, I thought that these things happened only here in Romania. I was only a child, twenty-something when I arrived in France and I realised that being the only girl among the eight students, the only girl to have succeeded in getting there, I was somehow expecting to see more girls in France. We were in another country after all, right? We were not at home anymore. I thought that things were different in a country which I assumed was more developed than Romania. And I got there, and we were 34 girls out of 150 students in the first year. So, practically, this gap was maintained. I think it has more to do with the mentality of the previous generations, basically. And then this pressure was further accentuated in the second year, this pressure of proving that I made the right decision when choosing this field and that even though I am a girl, I am capable of doing whatever my male peers are also doing in this field.

This is a pressure that unfortunately over the years transformed itself into frustration, because you are unable to manage this pressure at twenty-something years old other than by turning it into frustration. And of course, after more than ten years things from my point of view, from my personal experience, are starting to change because the mentality has also changed, the way we look at things has also changed, our perception on gender equality has also changed, but all the things I went through in my student years and all this pressure later turned into frustration, made me want very much to campaign somehow. Not necessarily because I think women should have more rights, but rather to achieve gender equality in science and research. I am referring to our field, science and research.

What I mean is that I want for young girls, who are attending, for example, the Polytehnica University today, to know and not have to find out throughout their years of studies, but to know from the very beginning that it is perfectly normal to work in science and in research."

What are your hopes and wishes for the next generations of girls or women who want to work in research? What do you wish for them? What would you like to happen for their career path to be smoother?

"When I think of the next generation, I cannot ignore that things have changed when compared to back when I was a first-year student. It would be hypocritical to say otherwise. Things have been done, things are currently being done, we see different projects, different interviews, different public figures talking more and more on this aspect, but the reality is reflected in numbers and if I look at numbers, especially since we are talking about science and numbers, I see the following situation. Fortune Magazine, in 2020, published an article which clearly stated that even though 55% of all graduates from all fields are women, only a small percentage of them have leadership positions. And when I say a small percentage, I am talking about 7.4%. It is extremely little when we are talking about 2020-2022, it is a very small number.

When referring strictly to engineering, this number is a little higher and it is still growing, it's at 14.6%. Why? Because today, when I am teaching at the Faculty of Energetics, the same faculty I pursued and the same faculty I graduated from, whereas in my first year we were three girls and over twenty boys, I now see that girls represent half of the class. So now I have classes in which half of the students are girls. So there is initiative, things are looking positive for girls, things are moving forward, and the gender gap is not there anymore or if it is, it is very small. But still why, when you look at the numbers around us, at CEO level positions, leadership, engineering and so on, the percentage of women is still below 20-24%. Why is that?

So my wish for the next generations of female graduates, women, young ladies, is for this percentage of 14.6% in engineering not only to grow, but to grow significantly. Let that change happen. I am aware that this change is not simple, that it will not happen in a few days, weeks, months or even years and that it requires a lot of involvement from many points of view, but I truly wish that the next generation sees this number grow. And if I can contribute to this growth, why not do it, especially when I have my own experience to relate to?"

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What would you advise them to do? How should they think or what should they do for this percentage to grow and for girls to be fairly represented, just as they should be in this field?

"First of all, I think that this is an issue that does not address strictly girls who want to do something or want to demonstrate something. It is an action that requires a lot of global effort, and this means effort from my side, from your side, from the girls' side, from the previous generations, from future generations and from society as a whole.

Regarding the next young women who graduate or the next female candidates at study programmes in science-related fields, I think they should always speak their minds. I think it is important to talk about this aspect, I think it's important to say, "I am not comfortable with this" or "I don't think this is normal". Nothing bad will happen if you speak up. When you speak and you draw attention to a subject, this means that you make it visible and that you made yourself heard. And this in turn has an echo that will go further and further. And this echo, when heard, stops being non-existent and it becomes visible, in the sense things are brought to light. And then it's important, if you campaign for something or if you talk about a certain topic, it is important to thoroughly know it. You cannot say one thing, while also supporting a kind of behaviour which is discriminating in one way or another or show prejudices, regardless of their nature and not necessarily gender related. I think it is important to be responsible and consistent."

To find out more, please visit the CALIPER Project website.

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