An aspiring career in Space

Guendalina Palmirotta works at the European Space Agency (ESA) in Germany as a National Young Graduate Trainee in the Space Weather Office. She always dreamt of joining the space industry and after studying at the Faculty of Science, Technology and Medicine, she was able realize her dream. She answers some questions and explains here below her path and current responsibilities but also what skills are necessary to thrive.

What is your studying path?

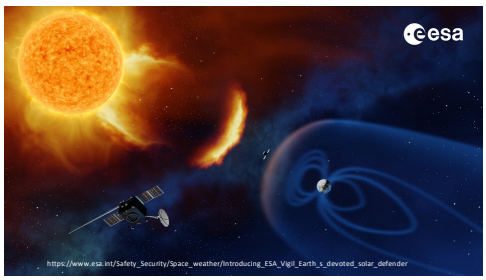
I did all my studies from Bachelor to Ph.D. in mathematics at the University of Luxembourg in the Department of Mathematics. I chose to pursue a very 'unusual' math-path, since I went from a master in applied/industrial mathematics to a Ph.D. in a very theoretical mathematical field, Harmonic Analysis on manifolds.
I decided to pursue this path to better understand the mathematics from both aspects, theoretical and numerical.

I would like to mention, but also thank, Prof. Jean-Marc Schlenker; he played a crucial role in my study path. In fact, when he suggested the topic to me for the bachelor thesis, he did not only introduce me to the stunning world of mathematics through programming but also the research behind it.
I believe that without him, I would probably have ceased after my master studies and be a high-school math teacher.

Why did you choose to work in the space industry?

From an early age on, it has always been my dream to work one day for a space industry like the ESA or the National Aeronautics and Space Administration (NASA).
When the Luxembourg Space Agency offered this interesting opportunity, for us young researcher, I told myself that it is now or never.

You are now working at the ESA. What is your job title and what are your responsibilities?



I am a Luxembourg National Young Graduate Trainee in the Space Weather Office in the European Space Operation Center (ESOC) in Darmstadt, Germany.
As mathematician, I got the interesting but also important task to optimise and model space weather data from ground and space-based instruments to improve prediction capabilities. In fact, with the increasing amount of satellite operations around our planet Earth, the

prediction of space weather phenomena, like strong high-energy solar storms, are indispensable to mitigate the impact on the satellite systems and our society.

Do you face challenges? What are they?

There is a number of different challenges to face, in particular at the beginning. One of them is to 'translate' the problem in a mathematical model and chose suitable tool(s) to solve it. Sometimes it could be a difficult task to achieve. Teamwork is very important in this case. I work together with engineers and physicists, who most of them have a precious experience in this domain.

What do you like about your new position?

The benefits are countless! It permits me to use, in a more concrete and direct way, my strong mathematical knowledge for space related problems. However, the most predominant one is to be part of important missions, such as the new 'Vigil' mission, which will keep an eagle eye on the 'side' of our active and unpredictable Sun!

What would be your recommendations to other students who wish to undertake a career in space?

Having an applied or theoretical mathematical background is a big advantage. Besides, you need to be passionate, especially about our space. The most important message: never give up, work hard, and hold on to your dreams!