

SE04EP07

**Dr. Emanuele Pace**

**Physicist, Astronomer, Professor**

H: Welcome to Noles Abroad, a podcast by Florida State University International Programs! I'm Hannah

Z: And I'm Zoe! And we are your hosts. On this podcast we'll talk about study abroad from the perspective of the students, faculty, staff, and alumni who make it an experience worth sharing. We'll also bring you travel tips and fun facts from around the globe.

H: On today's episode we talk with Dr. Emanuele Pace, an astronomer and physicist who teaches at FSU Florence. Dr. Pace talks about his work with the International Space Station, how the soul of teaching is sharing passion and knowledge, and the future of humans in space. Let's go to our conversation with Dr. Pace now.

H: Hi, how are you?

Dr. Emanuele Pace (E): Fine, thank you.

H: Wonderful can you introduce yourself to our listeners?

E: Sure, I'm Emanuele Pace I'm a professor of Natural Sciences of the Florida State University, teaching Astronomy in the Fall semester and Environmental Science and then the Spring semester, so this is my teaching duties. But from professional point of view I'm the project manager of the space mission which is named Ariel it goes in 2029 to study, it's a telescope, to study the atmospheres of exoplanetary worlds, I would say planets orbiting around other stars not in the solar system. So we are trying to discover new worlds, new life, new life every everywhere I hope so this is a great job.

Z: Wonderful that sounds very cool, I love space and it's really neat that you get to work on that project. So first off can you tell us a little bit more about your path to becoming an astronomer and physicist and what inspired you to study space science?

E: Oh, I started very early. I was a young child I was 11 years old and my father gave me a telescope as a present for Christmas and then I started to discover the cosmos through that small piece of optical system and that was very fascinating, it fascinated me and I decided that time to study to become an astronomer. And so, all my studies were addressing that objective and I mean I was a physicist and then an astronomer and now I'm glad to have the transferred my passion in my work. So, and the teaching is another very great job I have the opportunity to do because to transfer what I learned, and I'm learning every day, to students is I think is one of the best things can occur to someone studying something because otherwise everything stop to you. And I mean you can discover something and and it's nice to transfer what you learned to someone else so the young people is best. It's a sort of transferring to the future.

H: It's great to hear where this passion for you started but also to hear how you are interested in passing that along and keeping that passion going. But talking a little bit more about your professional endeavors

and your professional work, you recently worked with the International Space Station. Can you talk more about that and what other professional projects you're working on now?

E: Yeah I worked with the International Space Station because I studied the environment of the space station using DNA and diamond detectors to study what occurs to the astronaut being exposed to a risky environment because of radiation and several particles going around there. And so it's interesting to learn if there is any damage to the DNA, to their DNA, and to understand which are the mechanisms that the cells can use to repair themselves and which is the kind of damage you can have having such long exposure to such radiation. So that was my job there that I worked with the astronauts and was a very great experience. And now I'm working with something different as I said I'm working in the exoplanet field because my main activity is space technologies. I'm engaging in several projects having different science objective different objectives because I'm an expert of, I would say, space systems – optical, mechanical, thermal, detectors so this is my my main job. So I'm contributing to produce to o have those experiments in space and then astronomers will do their job with with my instruments.

H: So from my very limited knowledge of space and astronomy and all of these things, if I'm understanding it correctly a lot of those projects the ones where you're working with all these instruments those are more kind of technical but your experience with the space station was working with actual people in space is that common do you work more with instruments and satellites and things like that, or more often with actual humans in space?

E: I'm actually I'm working with more with the instruments I at that time, it was a few years ago, I had the opportunity to use something that I was working on that is diamond detectors which are very special detectors very normative, we discovered that was a very good detector to measure the radiation level so we applied for a project measuring the level of, the dose I I would say, of radiation and at the same time the damage. So I had the opportunity to work a few years on something useful for astronauts and now I'm working again on something useful for humans, that is knowledge in general from the general point of view.

H: Absolutely they both sound really, like really interesting projects for sure.

Z: And I'm curious to know, what do you think is the future of humans in space?

E: I think that space will be more and more part of our lives. I'm trying to teach space technology and space astronomy and, I would say, other planets to students because I'm really convinced that the future, their future will be with more space. There will be more space in their lives. And because it will be an opportunity that space will be will mean more application from space and the opportunity to go in space would be more available than for us than currently. So I think that space will be very embedded in our lives in... now it's something interesting a lot of people can use applications such as GPS or television, TV cells. mobile phones and many, many, forecasting, so many applications. But there is a sort of user of space, in my opinion an 10-20 years we will be more involved in, not only as users but more people will be involved in space programs and the opportunity to live in space will be more and more possible. I think that in a let's say 50 years some people will live somewhere in the in the solar system.

Z: Wow, wonderful that sounds so exciting.

E: Yeah, right.

Z: Shifting a little bit, we want to know what led you to become a professor and what you love most about teaching.

E: I became a professor because I started my employment at the University of Florence and now I'm in the Florida State University and I try to transfer my knowledge and as I love to say I try to transfer the soul of science - the passion that you have to apply to learn something more. You have to be curious, you have to be hungry, as Steve Jobs said, and you have to keep yourself always very, oh let's say, you have to catch any opportunity to learn something new. So, you must be open minded, always open to new novelty, innovation. And therefore I'm trying, being convinced about that, I'm trying to transfer this to the students. Whatever will be their activity, not only in science, this approach is the best in my opinion. It's the best way to innovate, to find something new and they have to - I would like to have them always on the frontiers of everything.

EH: So you mentioned that you also teach at the University of Florence as well as Florida State University in Florence, what differences have you experienced in teaching Italian students and American students?

E: I would say that the Italian way, approach, is more formal. Let me say American approach is... I'm more involved in discussion with the students. They are always participating in discussions, not only knowledge transfer from myself to them but also the critical experiences is always there. They are used to comment to give their opinion and this is very interesting because you can you have the opportunity to adapt your teaching to their curiosity, their opinions, and you may you may improve your transferring. So, I think that the American approach is more involving, is more I would say enthusiastic, it's something that is really amazing, not only useful. And so, this is the major difference I experience.

H: It's cool to hear that you're able to kind of adjust your teaching for the students so it kind of shows that you are not just transferring that knowledge but maybe you're learning some things too and how to better transfer that knowledge and share all of your passions with those students and how they'll best receive it, it's really cool.

E: Yeah, yeah it's interesting to see sometimes for example that I prepare my lesson, my class, and then however I don't say what I have in my mind but something new because from the comments from the questions you start to change your program and to adapt your teaching to their need and to their curiosity. So, it's still teaching but adapting to their needs and questions. So, the if you answer to questions what you want to transfer will be more effective then just saying something, probably boring.

Z: So, our last question is talking a little bit about students but we want to know what advice you have for students who are considering studying abroad.

E: That that is a must in my opinion. I'm not saying to study in Italy, that is the best from my opinion, my point of view, obviously. But it's an experience, it's something that has to be done because open their mind, they have you opportunity to face different cultures, different way to see the life, and therefore is something that is highly educational. And so, they will bring back home not only something learned, but a piece of life. So, it's something that they have to do, at least once in their life.

H: That is really great advice thank you so much Dr. Pace for sharing your expertise, and your passion for teaching an astronomy, and thank you for teaching me a few things about space that I did not know.

E: Oh, thank you! And my lectures, my lessons are open so if you want to join by remote connection, now we are used to so very welcome.

H: We might just ask you for that Zoom link.

Z: Thank you!

H: Before we disembark, we want to talk about being a STEM major abroad.

It's a common misconception that STEM majors can't study abroad, but with some early planning, it is possible! Meet with IP's academic advisor to talk about your options of where, when, and for how long you can go abroad. You can set up a meeting through Campus Connect or by emailing [IP-AcademicAdvising@fsu.edu](mailto:IP-AcademicAdvising@fsu.edu).

Z: IP offers STEM courses during Broad Curriculum programs as well as a few programs dedicated to specific fields of STEM. You can even take some lab classes in some locations. Besides learning in the classroom, there are opportunities to learn through museum visits, excursions to aquariums, tours of scientifically significant places and events, and more. Contact us to learn more!

H: Thanks for listening, and thanks to Dr. Pace for talking with us today!

Z: This podcast is a production of FSU International Programs. The music for this podcast was composed by John Bartmann. Our logo was designed by Vanessa Guirey, who also does our sound engineering. Editing, transcription, and research is done by us, Hannah Meister and Zoë Crook.