

YOUNG WOMEN IN PHOTONICS

EOS interviewed the previous winners of the *Young Women in Photonics Awards*. This is a series of inspirational stories of these remarkable scientists, their path to success and what it takes to follow your passion.



Name: Nathalie Vermeulen, Belgium

Age: 36

Area of specialization: Photonics Engineering

Education:

- Master in Electrotechnical Engineering – Photonics, Vrije Universiteit Brussel (VUB)

- Doctor in Engineering, Vrije Universiteit Brussel (VUB)

This is a story about inspiration, motivation, hard work and taking advantage of opportunities that come your way.

STARTING EARLY

For Nathalie, it became quite clear at an early age that she would pursue a career in photonics. When she was 15-16 years old, an inspiring teacher in physics first ignited the spark for her to start research in the field. Nathalie did not know yet what she would specialize in but it was clear that she wanted to study (applied) sciences. The teacher explained astonishing physical phenomena like Super Nova explosions. *“That’s what inspired me to learn more about sciences in general. I knew this was the way to go for me.”*

She then continued to study applied sciences and engineering at Vrije Universiteit Brussel (VUB, Brussels, Belgium) in 1999. VUB, at that time, was the only university in Europe that offered engineering studies oriented towards photonics. Today, VUB offers an English-taught European Master of Science in Photonics: <https://www.vub.ac.be/en/study/european-master-of-science-in-photonics/programme>

INSPIRATION

Photonics, and light as such, is very fascinating to Nathalie, and not only from a scientific point of view. *“There is an artistic touch to light. Anything visual is connected to light, and light thus is essential in all visual art forms, like painting, sculpting, filmmaking, etc.”*

Today the importance of photonics is more widely acknowledged than ever before, with the first UNESCO International Day of Light being organized this year (16th of May). The all-round presence of photonics in everyday life (think about the high-resolution screens in mobile phones and (3D) TVs, optical fiber telecommunication, efficient LED lighting and solar energy, ...), makes it an extremely promising research domain. *“Light, acting either as a wave or as a collection of light particles, enables a myriad of practical applications. My research activities are mainly focused on generating spectrally broadband laser light in compact photonic chips, paving the way to, amongst others, a portable all-optical glucose sensor for diabetes*

patients. " As such, photonics research and discoveries allow improving the quality of life. "The future is bright, as they say in the field".

SETTING GOALS

Nathalie has always tried to make the most out of the opportunities she has been given during her research career. In 2004 she started as a PhD student with a scholarship from the Flemish Research Foundation (FWO) and in 2008 acquired a Postdoctoral researcher fellowship also from FWO. A few years later she started elaborating on an ambitious 5-year research plan for a European Research Council (ERC) Starting Grant proposal and finally her proposal was granted by the ERC in 2013. Today she is a Tenure Track professor in B-PHOT (the Brussels Photonics research group) at VUB. "There is a lot of competition in the field, but if you are committed, and do your utmost best to make the most out of the opportunities coming your way, you will have higher chances to achieve your goals".

Nathalie currently leads a team of three PhD students and two Post Doctoral researchers at VUB, with whom she researches broadband light generation in photonic chips covered by the revolutionary material of graphene.

Tips from Nathalie for students and early-career researchers:

- If you want to pursue a career in photonics, start with Bachelor studies in engineering, electronics and information technology, or (applied) physics. This way you will be optimally prepared to continue with the European Master of Science in Photonics afterwards.

(<https://www.vub.ac.be/en/study/european-master-of-science-in-photonics/programme>)

- Take advantage of the chances given to you. Work hard, be Brave.
- Look for a working environment with a positive atmosphere and be a dynamic part of the team.
- Also look to other disciplines and get out of your comfort zone. Interdisciplinary thinking is a major asset in any field, and particularly in photonics research or industry.
- Don't be afraid of the competition Just try to do your very best and, if not successful from the first time, don't give up, learn from your mistakes, and try again.



The interview was conducted in October 2017 and updated in February 2018.

Background to the Award

EOS Early Career Women in Photonics awards were launched in 2015 to honor the International Year of Light and Light-based Technologies 2015 (IYL2015). The Early Career Women in Photonics Award is presented to honour a young female scientist who has made outstanding contributions to photonics.

In 2015, the Young Women in Photonics award was divided into two categories due to the high level of applicants. The Young Women in Photonics Awards went to Na Liu (Max Planck Institute for Intelligent Systems) in the Fundamental category and to Nathalie Vermeulen (B-PHOT Brussels Photonics, Vrije Universiteit Brussel) in the Applied/Engineering category. The awards consisted of a diploma and an honorarium of €2500. The awards were presented at the World of Photonics Congress in Munich, Germany, June 2015.