FONDAZIONE BRUNO KESSLER MAGAZINE

We are Yong

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From Korea to Trento, the journey of a young PhD student who chose FBK as his scientific home and life community.

Born in 1998 in Busan, Republic of Korea, Yong Kwon is a PhD student at FBK and in the Department of Physics at the University of Trento (UniTN), under the supervision of Mher Ghulinyan (FBK) and Iacopo Carusotto (University of Trento). Since the end of 2024, he has been conducting research at the “Integrated and Quantum Optics (I&QO)” unit of the FBK Center for Sensors and Devices. The working group, led by Georg Pucker, develops, fabricates, and characterizes photonic integrated circuits (PICs) made from different material platforms. Some fields of application include biomedical detection and the miniaturization of devices for telecommunications and quantum computing.

Kwon’s main scientific interest is photonic quantum computing. Starting from the development of optimized Kwon’s main scientific interest is photonic quantum computing. Beginning with the development of optimized software for the EPIQUS H2020 European project—an initiative that led to the creation of an inexpensive, easy-to-use, high-performance quantum simulator based on the full integration of silicon nitride photonics with silicon electronics—he has focused on implementing quantum photonic experiments on these devices.

How can we control light and use it to transmit information, to process classical and quantum information? How can a computer interact with light? The answer lies in PICs. Similar to electronic microchips, which perform calculations by manipulating electric current, PICs work by manipulating the behavior of light itself within them.

Not just science

Last year, together with colleagues from the I&QO unit, he contributed to the “Research Night” (“Light and microchips: a photonic intertwining”) and to “Quantum Pioneers,” the first edition of the “Pioneers in Research” Summer School, with a focus on quantum technologies. Thanks to this initiative, FBK opened the doors of its laboratories to university students specializing in Computer Science, Engineering, Physics, and Chemistry for an immersive research experience, offering them an innovative program in the dynamic field of microelectronic technology, which will have a profound and wide-ranging impact in the immediate future.

Within the FBK community

Passionate about life at FBK, he also actively participates in the Foundation’s Choir, an initiative carried out in collaboration with the Center for Music, Theater, and Dance Education (CDM) in Rovereto. It is a community-building experience that, through meeting and sharing, strengthens identity and a sense of belonging. An artistic and cultural practice that promotes well-being and creates social bonds, helping to improve interpersonal relationships. At the end of January, the choir held its first concert: the hall was packed and the excitement was palpable.

This shows that the world of research is made up of people who share scientific interests and passions that build bridges across different environments, becoming valuable resources for mutual support among colleagues, integration into the local community, and the pursuit of academic opportunities.

“FBK is the best research institution to carry out my research and develop my career. It is very well organized; for example, it provides support not only for research units, but also for HR, finance, IT, and food services. Thanks to these support teams, I can focus fully on my research and achieving my goals. In addition, my research unit and center have a truly flat organizational structure, so there are no barriers to sharing ideas across different levels of researchers.

Besides the institution itself, Trento is certainly an ideal place to manage stress from work or study. Beautiful mountains and clean air help maintain a healthy mindset. On weekends or during vacations, you can go hiking in the mountains, such as Monte Bondone or Cima Marzola, or take walks around lakes like Caldonazzo or Garda. You can also meet new people not only from Italy but from many other countries, and enjoy spending time together through various activities—for example, going out for drinks.

The only requirement is a strong passion for pursuing your dreams. As an international student, I had to make a difficult decision to study abroad, leaving behind my life in Korea—my parents and my Korean friends. Nevertheless, I believed in myself and in my confidence and self-worth, and I ultimately decided to begin my PhD journey here. With the strong support of FBK and the vibrant social atmosphere of the Trentino region, your dream can truly come true.”

Talent and quality of life

Trento is the province with the highest quality of life in Italy, and Fondazione Bruno Kessler represents both a piece of the recent history of this area and a seed for its future.

The personal and professional journey that brought Kwon to Trento, about 8700 km from his home, is a great example of emotional and relational intelligence. In this sense, his story is not unique at FBK, where researchers come from over 30 different countries around the world.

Cultivating talent is a commitment that is renewed daily at FBK. Maintaining high standards of quality in the working environment is a choice based on conviction rather than convenience. This

means being able to count on the most qualified mentorship in one’s field of study and, at the same time, being able to balance life and work, success and well-being. Only in this way can genius become a sustainable collective force.

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