DEPARTMENT OF ELECTRONIC SYSTEMS

QUARC - INTERNATIONAL SUMMER SCHOOL POST-QUANTUM CRYPTOGRAPHY IN COPENHAGEN

Date

25-29 August 2025

Venue

Aalborg University – Center for Communication, Media C Information Technologies

A.C. Meyers Vænge 15, Bygning B, Room 0.06 (ground floor)

Frederikskaj 12. 2450 København SV, Denmark

Program

Sunday	09.00	16.00		Recommended arrival in Copenhagen

			Speaker	Title
Monday Room 0.06 Building B	09.00	10.00	Sokol Kosta, AAU	Welcome & getting to know each other
	10.00	11.00	Jose Luis Imana, UCM	Fundamentals of PQC
	11.00	12.00		
	12.00	13.00	Lunch break	
	13.00	14.00	Jose Luis Imana, UCM	Fundamentals of PQC
	14.00	15.00		

Tuesday Room 0.06 Building B	09.00	10.00	Andrea D'Intino, Forkbomb	PQC Implementations
	10.00	11.00		
	11.00	12.00		
	12.00	13.00	Lunch break	
	13.00	15.00	**Industry Corner**	
			Daniel Lawo	Future Data Centers: Hardware-Offloaded Post-Quantum Secure Optical IPsec Tunnel for Confidential AI Training
			Ricardo Stefanescu	Secre - Adoption is hard
			Michał Podleś	Lightweight L7 load-balancing
			Jeronimo Sanchez Garcia	Optimizing distributed operations with SmartNICS
			Mari Muurman	Ongoing PQC Research at VTT: project BLiMPQC and PQC Transition
			Ali Asgar Erinpurwala	Towards a crypto-agile future for IoT & ICS
			Dimosthenis Iliadis-Apostolidis	Scalable Network Slicing with Virtualized Systems using PQC
			Abraham Cano Aguilera	Enabling Crypto-Agility with Triple-Hybrid Schemes on Data Processing Units.

Wednesday Room 0.06 Building B	09.00	10.00	Idelfonso Tafur Monroy, TU/e	Quantum communications as a whole
	10.00	11.00		
	11.00	12.00		
	12.00	13.00	Lunch Break	
	13.00	14.00	Carsten Baum, DTU	Probable security for PQC
	14.00	15.00		

Thursday Room 2.1.042 Building A	09.00	10.00	Samant Khajuria, TERMA A/S	Quantum Communication in new frontiers
	10.00	11.00	Shreyas Srinivasa, TERMA A/S	
	11.00	12.00	Mieszko Ferens, AAU	
	12.00	13.00	Lunch Break	
	13.00	14.00	Juan Jose Vegas Olmos, Nvidia	PQC in high-speed communications
	14.00	15.00		

Friday Room TBD Building TBD	09.00	11.00	**Poster Corner** Daniel Lawo, Marius Cotiga, Ricardo Stefanescu, Michał Podleś, Jeronimo Sanchez Garcia, Mari Muurman, Ali Asgar Erinpurwala, Gizem Akman, Dimosthenis Iliadis-Apostolidis, Abraham Cano Aguilera	
	11.00	12.00	Sokol Kosta, AAU	Wrap Up
	12.00	13.00	Lunch Break	

About the Summer School

The International PQC Summer School explores emerging trends and challenges in post-quantum cryptography, a critical field as quantum computing advances. With PQC algorithms now being integrated into networked systems, new challenges must be addressed.

Organized in collaboration with **Aalborg University, NVIDIA, Eindhoven University of Technology, and Universidad Complutense de Madrid** under the MSCA QUARC Project Doctoral Network, the program covers:

- Theoretical foundations of post-quantum cryptography
- Global challenges C standardization for quantum-resistant protocols
- Practical implementation of PQC algorithms in current systems
- Impact of quantum computing on cryptographic security

In line with previous summer schools held in Copenhagen, this PQC Summer School is designed as a hands-on learning experience. Participants will engage in practical workshops, applying post-quantum cryptographic techniques to real-world problems. This unique approach allows attendees to develop practical skills in designing, testing, and deploying quantum-resistant cryptographic solutions.

The QUARC Summer School will take place at Aalborg University in Copenhagen (Denmark) from **August 25 to 29, 2025**.

Speakers

Speakers

- ✓ **Dr. Sokol Kosta** is an Associate Professor in the Department of Electronic Systems at Aalborg University, Denmark. He earned his Bachelor's (2006), Master's (2009), and PhD (2013) degrees in Computer Science from Sapienza University of Rome, Italy. His research interests include edge computing, distributed systems, high-performance computing, large data processing, and modeling. Throughout his career, Dr. Kosta has contributed to various international research projects and has been recognized with several awards for his work.

- ✓ **Andrea D'Intino** is the CEO and Co-Founder of Forkbomb B.V., a company specializing in cryptographic solutions for digital security. He has been associated with Dyne.org since 2017, contributing to various projects in the realm of digital privacy and open-source technology. Before his tenure at Dyne.org, Andrea worked at 3D Systems Inc. and 3Shape, and co-founded Tag Forge. He holds a Bachelor's degree in International Economics from La Sapienza University in Rome. In his current role, Andrea leads the development of Signroom, an open-source document signature solution aimed at enhancing digital document security and privacy. He has

been actively involved in discussions about the need for disposable digital identities to foster a more secure and resilient digital society.

- ✓ **Dr. José Luis Imaña Pascual** is an Associate Professor in the Department of Computer Architecture and Systems Engineering at the Complutense University of Madrid, Spain. He earned his M.Sc. and Ph.D. degrees in Physics from the same institution in 1989 and 2003, respectively. Early in his career, he worked as an Electronic Design Engineer at the Madrid Institute of Technology. His research focuses on computer arithmetic, finite field arithmetic, cryptography, and reconfigurable computing. Dr. Imaña has contributed to the development of efficient hardware architectures for cryptographic applications and has been involved in organizing international workshops on finite field arithmetic.

- ✓ **Professor Idelfonso Tafur Monroy** is a leading researcher at Eindhoven University of Technology (TU/e) specializing in photonic terahertz systems and quantum technologies. His work focuses on developing advanced photonic techniques for secure communication systems, including quantum key distribution (QKD) protocols. He has led projects to create high-speed, all-integrated QKD transmitters and contributed to integrating QKD into existing communication protocols to enhance cybersecurity. Through his research, Professor Tafur Monroy has played a key role in advancing secure communication technologies in the era of quantum computing.

- ✓ **Dr. Samant Khajuria** is the Vice President of Cyber and Quantum at Terma, a Danish aerospace and defense company. He earned his Ph.D. in Cryptology and Wireless Communication from Aalborg University, Denmark, where he also served as an Associate Professor. Dr. Khajuria has a strong background in cybersecurity, having held positions such as Chief Specialist and Senior Specialist in Cyber Security at Terma. His research interests include cryptography, wireless communication, and the integration of quantum technologies into cybersecurity frameworks. He has co-edited the book "Cybersecurity and Privacy - Bridging the Gap," contributing to the discourse on privacy and security in the digital age.

- ✓ **Dr. Shreyas Srinivasa** is a Technical Manager at TERMA A/S with responsibility of the research and development of a Cyber & Quantum product portfolio. He has extensive experience and research background in cybersecurity, including cyber resilience, network security, cyber deception, cyber threat intelligence, and IAM. Shreyas received his PhD degree in Cyber Deception and Cyber Threat Intelligence from Aalborg University in 2023. Between 2023 and 2024, he worked as a Post-Doctoral Security researcher at the Center for Communication, Media, and Information Technologies, Aalborg University, Copenhagen, Denmark. During his academic experience, Shreyas was involved in EU research projects and published at top international security conferences. Before his Ph.D. Shreyas worked as the Head of IT at a fintech firm in Germany, leading the IT and Security operations. Shreyas received his M.Sc. from Technische Universität Darmstadt (TU), Germany.

- ✓ **Dr. Mieszko Ferens** is a Postdoc at the Dept. of Electronic Systems, Aalborg University. His current research focuses on the application of Quantum Information Technology (QIT), specifically, security in communication through the use Post-Quantum Cryptography (PQC) and Quantum Key Distribution (QKD). He will finalize his Ph.D. in resource-constrained IoT device fingerprinting in September 2025 at Aalborg University. He has obtained his MSc and BSc in Telecommunication Engineering at the University of Valladolid in 2022 and 2020, respectively. He has also participated in Vulcanus in Japan 2021/22 working on Urban Digital Twins with NTT Data.

- ✓ **Dr. Carsten Baum** is an Associate Professor in the Cybersecurity Section at DTU Compute in Copenhagen, Denmark. His research focus is on (applied) secure computation as well as post-quantum zero knowledge protocols. Furthermore, he is interested into security for machine learning and secure protocol design using public ledgers. Before starting on this position at the Technical University of Denmark, Carsten was an Assistant Professor and Postdoc at Aarhus University as well as a Postdoc at Bar Ilan University, Israel. Carsten obtained his PhD in 2016 from Aarhus University.

- ✓ **Dr. Juan José Vegas Olmos** earned his B.Sc. in Telecommunication Engineering from the Polytechnic University of Catalonia, Spain, in 2001, and his M.Sc. in Electronic Engineering from UPC BarcelonaTech in 2003. He further obtained a B.Ec. in Business Administration from the Open University of Catalonia in 2005. He received his Ph.D. from Eindhoven University of Technology. Currently affiliated with NVIDIA Corporation in Copenhagen, Denmark, his research focuses on integrating post-quantum cryptography into existing communication protocols to develop quantum-resistant communication systems. Notably, he has co-authored studies on hybrid solutions combining classical, quantum, and post-quantum cryptography within Transport Layer Security (TLS) 1.3, aiming to enhance secure communications in the face of emerging quantum threats.

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General information

Preparation required ahead the Summer School

Before the start of the QUARC Summer School, students will be asked to fill in and upload in Moodle a "Questions for participants about background and technical skills" sheet that is provided separately after registration. This questionnaire will help understanding the technical background of the audience and tailor the delivery of content accordingly.

Industry Corner

The summer school is intended to be a platform for dialogue between academia, industry and doctoral students. Hence, the summer school will host an Industry Corner where participants can pitch their RCD projects and receive feedback from industry players.

Indicate in your application if you want to pitch your research work.

Poster Corner
The summer school aims at sparking new research collaborations and cross-fertilizing the field. Hence, the organizers expect each participant to have a poster ready. Posters will be hanged in a common hall and a dedicated session will be included to provide space for participants to learn what other doctoral candidates are doing and speakers the ability to engage with meaningful discussions with the doctoral candidates.

Final Certificate
Students are reminded that to receive a completion certificate (corresponding to 2 ECTS) the attendance requirement is 100%, and they should upload a short report by September 23rd, 2025.

Target Audience
The QUARC Summer School is intended for PhD students in the area of networking, computer science, cryptography, computer architecture, communications, computer software, high performance computing, and related fields. Preference will be given to applicants in areas matching or adjacent.

Tuition Fee
The QUARC Summer School is free for QUARC Doctoral Candidates.

Other applicants will be charged 250 euro/person to cover for auxiliary expenses including breakfast, coffee breaks and lunch.

All other costs related to lodging, transportation, etc., are to be assumed by the applicants.

Venue
The QUARC Summer School is hosted at Aalborg University, Copenhagen Campus – right in the heart of Copenhagen.

- A.C. Meyers Vænge 15, 2450 Copenhagen, Denmark
  Building B, Room 0.06 (ground floor)

Conveniently located next to major public transport, it is barely 10 minutes away from the city center. With extensive facilities including different cafeterias and a lunch

restaurant, Aalborg University is a great place to learn, enjoy beautiful surroundings, and discover Copenhagen.

Contact

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Funded by European Union's HORIZON-MSCA-2021-DN-01 programme

This project has received funding from the European Union's HORIZON-MSCA-2021-DN-01 programme under grant agreement No 101073355.