QSI Project 101072637

HORIZON-MSCA-2021-DN-01

Funded by
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Quantum-Safe Internet (QSI)

Providing Share Online Resources

Deliverable D4.4

Deliverable: D4.4

Deliverable Name: Providing Share Online Resources (SOR).

Lead Beneficiary: University of Amsterdam (UvA).

Work Package No: WP4.

Link: https://quantum-safeinternet.com

Due Date: 30/09/2024.

Topics: Training topics:

1. Quantum Communications
2. Post-quantum cryptography
3. Quantum Computing
4. Quantum Information Theory

Index:

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In this document, we detail the shared online resources (SOR) that have been facilitated to the Doctoral Candidates (DCs) within the QSI project. Some material has been prepared specifically by this project, while other material has been generated by other projects and/or scientific colleagues. SOR supplement the training activities provided to the DCs, who already participate in relevant seminar series and attend formal taught courses and schools organised by the beneficiaries and associated partners.

SOR provide a general common knowledge about all relevant disciplines for the project and create a common background among the DCs. The set of resources/courses suitable for each DC depends on their individual background and the particular subproject in which they are recruited.

This compilation has been completed with the collaboration of all the partners who have been adding different works (files and videos) to the list below, and will be continuously updated.

The resources are organized by topic, being the main topics: Quantum Communications, Post-quantum cryptography, Quantum Computing and Quantum Information Theory.

1. Share Online Resources: FILES

Quantum Communication.

2023	Michal Hajdušek, Rodney Van Meter, "Quantum Communications": https://arxiv.org/abs/2311.02367
2020	Koji Azuma, Stefan Bäuml, Tim Coopmans, David Elkouss, Boxi L, "Tools for Quantum network design": https://arxiv.org/abs/2012.06764
2021	Christopher Portmann, Renato Renner, "Security in Quantum Cryptography": https://arxiv.org/abs/2102.00021

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Post-Quantum Cryptography.

2024	PQC Spring School (Slides) https://pqc-spring-school.nl
2019	School on Post-Quantum Cryptography (Slides) https://www.pqcschool.org/
2017	PQCRYPTO Summer School (Slides) https://2017.pqcrypto.org/school/schedule.html

Quantum Computing.

2024	Awesome Quantum Computing https://github.com/desireevl/awesome-quantum-computing?tab=readme-ov-file
2021	John Preskill, “Quantum computing 40 years later”: https://arxiv.org/abs/2106.10522
2019	Ronald de Wolf, “Quantum Computing”: https://arxiv.org/abs/1907.09415
2007	David Mermin, “Quantum Computer Science”: http://mermin.lassp.cornell.edu/qcomp/CS483.html

Quantum Information Theory.

2023	Christoph Dittel, “Quantum Information Theory”: https://arxiv.org/abs/2311.12442
1997-2022	Course Information for Physics: http://theory.caltech.edu/~preskill/ph229/
2021	Ryszard Horodecki, “Quantum Information”: https://arxiv.org/abs/2103.07712

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2020 Sumeet Khatri, Mark M. Wilde "Principles of Quantum Communication Theory: A Modern Approach.": https://arxiv.org/abs/2011.04672

2018 The Theory of Quantum Information https://cs.uwaterloo.ca/~watrous/TQI/

2015 Marco Tomamichel, "Quantum Information Processing with Finite Resources": https://arxiv.org/abs/1504.00233

2015 Renato Renner, "Quantum Information Theory – HS 2015": https://edu.itp.phys.ethz.ch/hs15/QIT/

2009 Simon J. Devitt, Kae Nemoto, William J. Munro, "Quantum Error Correction for Beginners": https://arxiv.org/abs/0905.2794

2. Share Online Resources: VIDEOS

Quantum Communication.

2024 QSI project: School on Quantum Cryptography https://tv.uvigo.es/series/magic/qeko62b9uo00o0okkk4g88ckog8ogo4

2021 11th BIU Winter School on Cryptography in a Quantum World https://www.youtube.com/playlist?list=PL8Vt-7cSFnw2JZsskO0bzeO7FswokQC7-

2019 QCALL project: School of Quantum Communications Networks https://mediaspace.unipd.it/channel/channelid/103263131 The password to see the video is: SQCN2018Padova

2018 Quantum Secure Communication School https://tv.uvigo.es/series/magic/po0izldz1hwo40k8w0cs4gwso8wwc0c

2017 Applied Quantum Cryptography https://tv.uvigo.es/series/5b5b5d488f4208f932568033

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Post-Quantum Cryptography.

2024	PQC Spring School https://pqc-spring-school.nl **(Pending to be uploaded on the QSI YouTube channel)**
2022	Graduate Summer School on Post-quantum and Quantum Cryptography https://www.ipam.ucla.edu/programs/summer-schools/graduate-summer-school-on-post-quantum-and-quantum-cryptography/?tab=schedule
2021	Quantum Techniques for Provable Security https://quiques.huelsing.net/
2021	11th BIU Winter School on Cryptography in a Quantum World https://www.youtube.com/playlist?list=PL8Vt-7cSFnw2JZsskO0bzeO7FswokQC7-
2020	Simons institute, “Christian Majenz on attacking hash functions” https://www.youtube.com/watch?v=LOtxqBJ6Qqk
2017	Summer School on Post-Quantum Cryptography https://2017.pqcrypto.org/school/schedule.html

Quantum Computing.

2024	Awesome Quantum Computing (2024) https://github.com/desireevl/awesome-quantum-computing?tab=readme-ov-file

Quantum Information Theory.

2024	Artur Ekert, Introduction to Quantum Information Science: https://www.arturekert.org/iqis
Multiple years	Andreas Winter, Quantum Information: https://www.youtube.com/@matsciencechannel/search?query=winter

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