Emil Khabiboulline

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Education

Harvard University August 2016 - Present
Ph.D. Candidate, M.A. in Physics *Cambridge, MA*

- *Thesis:* Quantum Communication and Thermalization: From Theory to Practice.
- *Committee:* Mikhail Lukin (chair), Aram Harrow, Ashvin Vishwanath, Daniel Jafferis.
- *Funding:* National Science Foundation Graduate Research Fellow.

California Institute of Technology September 2012 - June 2016
B.S. in Physics *Pasadena, CA*

- *Funding:* Stamps Scholar, Dunham Scholar, Fermi Research Alliance Scholar.
- *Honors:* Frank Teruggi Memorial Award, Lucy Guernsey Service Award, SanPietro Travel Prize.

Illinois Mathematics and Science Academy August 2009 - June 2012
High School Diploma *Aurora, IL*

- *Honors:* National Merit Finalist, National AP Scholar.

Publications

- E. T. Khabiboulline, J. S. Sandhu, M. U. Gambetta, M. D. Lukin, and J. Borregaard. Efficient quantum voting with information-theoretic security. In preparation.
- T. Schuster, B. Kobrin, P. Gao, I. Cong, E. T. Khabiboulline, N. M. Linke, M. D. Lukin, C. Monroe, B. Yoshida, and N. Y. Yao. Many-body quantum teleportation via operator spreading in the traversable wormhole protocol, arXiv:2102.00010.
- E. T. Khabiboulline, J. Borregaard, K. De Greve, and M. D. Lukin. Quantum-assisted telescope arrays. *Phys. Rev. A*, 100:022316, Aug 2019.
- E. T. Khabiboulline, J. Borregaard, K. De Greve, and M. D. Lukin. Optical Interferometry with Quantum Networks. *Phys. Rev. Lett.*, 123:070504, Aug 2019.
- S. Peng, R. Zhang, V. H. Chen, E. T. Khabiboulline, P. Braun, and H. A. Atwater. Three-Dimensional Single Gyroid Photonic Crystals with a Mid-Infrared Bandgap. *ACS Photonics*, 3(6):1131–1137, 2016.
- E. T. Khabiboulline, C. L. Steinhardt, J. D. Silverman, S. L. Ellison, J. T. Mendel, and D. R. Patton. Changing Ionization Conditions in SDSS Galaxies with Active Galactic Nuclei as a Function of Environment from Pairs to Clusters. *The Astrophysical Journal*, 795(1):62, 2014.
- E. J. DiMarco, E. Khabiboulline, D. F. Orris, M. A. Tartaglia, and I. Terechkine. Superconducting Solenoid Lens for a High Energy Part of a Proton Linac Front End. *IEEE Transactions on Applied Superconductivity*, 23(3):4100905, June 2013.

Presentations

- *Poster:* Quantum Information Processing 2021.
- *Talk (Invited):* Dinner Seminar at Cosmic Dawn Center (July 21, 2020).

- *Talk (Invited):* Provocateur Presentation at Quantum Leap Challenge: Quantum Sensing Ideas Lab (May 18, 2020).
- *Talk (Invited):* Quantum Computing Seminar (January 13, 2020) at Brookhaven National Laboratory.
- *Talk:* American Physical Society March Meeting 2019 – Focus Session on Distributed Quantum Computation, Networking, and Information Security.
- *Poster:* Quantum Information Processing 2019.
- *Talk (Invited):* Lunch Seminar (November 8, 2018) at Institute for Theoretical Atomic, Molecular, and Optical Physics (Harvard).
- *Talk:* Workshop on Quantum Information (April 23-24, 2018) at Center of Mathematical Sciences and Applications (Harvard).
- *Talk:* American Physical Society March Meeting 2016.
- *Poster:* International Conference on Quantum, Atomic, Molecular, and Plasma Physics 2015.
- *Poster (Chambliss Astronomy Achievement Student Award):* 223rd Meeting of the American Astronomical Society.
- *Poster (Special Award from CERN):* Intel International Science and Engineering Fair 2011.

Service

- *Referee:* Quantum Computing Theory in Practice 2020.

Instruction

- *Teaching Fellow:* Harvard Computer Science 127/227 (Cryptography), Fall 2021.
- *Teaching Fellow:* Harvard Physics 271 (Topics in the Physics of Quantum Information), Fall 2020.