

Colloquium d'Informatique de Sorbonne Université

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Quantum Networks: A Classical Perspective



18h00

Précédé par un
cocktail à 17h15



Amphi 34B

Sorbonne Université - Faculté des Sciences
Campus Pierre et Marie Curie
4, place Jussieu, 75005 Paris



English

Abstract

Quantum information processing is at the threshold of having significant impact on technology and society in the form of providing unbreakable security, ultra-high-precision distributed sensing, and polynomial/exponential speed-ups in computing. A critical missing component that prevents crossing this threshold is a distributed infrastructure in the form of a world-wide “Quantum Internet”. Two quantum network architectures have been proposed: two-way and one-way architectures. The two-way architecture appears very different from the classical Internet architecture. However, we will introduce a “connectionless” two-way quantum network architecture that allows one to easily adapt many ideas from classical networks. We provide several examples of the adoption of these good ideas and conclude with open research questions.

Bio

Don Towsley holds a B.A. in Physics (1971) and a Ph.D. in Computer Science (1975) from the University of Texas. He is currently a Distinguished Professor at the University of Massachusetts in the College of Information & Computer Sciences. His research interests include quantum information systems. He co-founded ACM Transactions on Modeling and Performance Evaluation of Computing Systems (ToMPECS) and served as one of its first co-Editor in Chiefs. He also served as Editor-in-Chief of the IEEE/ACM Transactions on Networking and on numerous editorial boards. He served as Program Co-chair and program committees for numerous conferences. Finally, he is a corresponding member of the Brazilian Academy of Sciences and has received numerous awards including the 2007 IEEE Koji Kobayashi Award and the 2023 Network Science Society Euler Award.



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