Dr. Muhammad Mubashir Khan

Associate Professor

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Objective

To continue my research in the area of Network and Information Security with special emphasis on Quantum Key Distribution Networks and to explore and teach the cutting edge technologies in Computer Science and Information Technology.

Academic Experience

Associate Professor **August 2011 to date**

Department of Computer Science & IT NED University of Engineering & Technology, Karachi Pakistan.

Assistant Professor **August 2005 to August 2011**

Department of Computer Science & IT NED University of Engineering & Technology, Karachi Pakistan.

Lecturer **August 2002 to August 2005**

Department of Computer Science & IT NED University of Engineering & Technology, Karachi Pakistan.

Education

PhD in Computer Science **April 2011**

From School of Computing, University of Leeds, UK
Thesis title: High Error-Rate Quantum Key Distribution: Novel Protocols with Improved Eavesdropping Detection.

Masters (by research) in Computer Science & IT **December 2005**

From Department of Computer Science & IT, NED University of Engineering & Technology, Karachi, with the thesis title: Effects of Quantum Computing on Cryptographic Hash Functions.

M.Sc. Hons (Telecommunications) **August 2001**

From Institute of Information Technology, University of Sindh, Jamshoro, Pakistan.

B.Sc. Hons (Telecommunications) **December 1999**

From Institute of Information Technology, University of Sindh, Jamshoro, Pakistan.

Research Publications

- KHAN, M., XU, J. & BEIGE, A. Improved Eavesdropping Detection in Quantum Key Distribution. (Under review process at IEEE Transactions on Information Theory) http://arxiv.org/pdf/1112.1110
- KHAN, M., XU, J. Quantum Cryptography with Generalized Bases and Dimensions of Photon States. International Journal of Security and its Applications (ISSN: 1738-9976), Vol. 6, No.1, 2012.

- KHAN, M., XU, J. A Taxonomy of Attacks on Quantum Key Distribution. International Journal of Latest Trends in Computing (E-ISSN: 2045-5364), Vol. 2, No.3, 2011.
- KHAN, M., XU, J. Critical Constraints in Practical Quantum Key Distribution. (E-ISSN: 2045-5364), Vol. 2, No.3, 2011.
- KHAN, M., MURPHY, M. & BEIGE, A. High error-rate quantum key distribution for long-distance communication. New Journal of Physics, 11, 063043, 2009.
- KHAN, M., HYDER, H., PATHAN, M. et al., A quantum key distribution network through single mode optical fiber, The 2006 International Symposium on Collaborative Technologies and Systems, Proceedings, pp. 386-391, 2006

Workshops (Invited talks / Presentations)

- Presentation at the Seventh Annual Canadian Quantum Information Students' Conference 2010 (CQISC'10), July 12-16, 2010, University of Calgary, Alberta, Canada.
- The Workshop on Quantum Algorithms, Computational Models, and Foundations of Quantum Mechanics, held from July 23 to July 25, 2010 at the University of British Columbia, Vancouver, Canada.
- The 10th Canadian Summer School on quantum information, held from July 17 to July 30, 2010 at the University of British Columbia, Vancouver, Canada.
- M. M. Khan, A. Beige, J. Xu. Quantum Key Distribution with High Eavesdropping Error-rate using Two Dimensional Photon States. Fifth Conference on the Theory of Quantum Computation, Communication and Cryptography, Leeds, UK April 2010.
- M. M. Khan, Jie Xu, Applications of QKD Networks for High Performance Distributed Computing, SECOQC, Vienna, October 2008.
- M. M. Khan, Jie Xu, Applications of Quantum Key Distribution, PhD Students Workshop, School of Computing,University of Leeds, UK. (First Prize)

Courses Taught

- Cryptography and Network Security (Master's level course)
- Network and Information Security
- Wireless Networks & Mobile Computing
- Computer Networking & Internet Technologies
- System programming
- Object Oriented Programming

Projects

- Working on the implementation of new QKD protocols on Clavis id500 (a QKD test bed from idQuantique), Just started work currently at very initial stage.
- Developed software for Admission System of NED University of Engineering & Technology, Karachi.
- Developed software for Medical Center of NED University of Engineering & Technology, Karachi.
- Developed Campus Message System for NED University of Engineering & Technology, Karachi.
- Comparison among LINUX, WIN-2000 & Novell Netware Specific to network architecture. (B.Sc. (H) Thesis Project)
- Developed software (Global PC & Mobile Access Server) as M.Sc. (H) final year project. A web-based solution for accessing PCs remotely via Internet Web-Browsers & WAP Enabled Mobile Phones.