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【546】 Towards implementations of device-independent quantum key distribution

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In this talk, I will discuss the so-called device independent quantum key distribution (DIQKD) protocols – where all elements of the setup are analysed as black boxes. Contrary to standard QKD, the security of DIQKD does not rely on detailed quantum models of the devices and is proof against “quantum hacking”. After a concise introduction I will present some ideas (noisy preprocessing, full-statistics analysis, random key measurements) that help bridging the gap between experimental requirements of DIQKD and current technological capabilities. Finally, we will discuss finite statistics analysis and the perspectives of long distance DIQKD based on SPDC generated entangled photons. The talk is based on publications given in comments.

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