Spectral characterisation of biphoton states

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Encoding information in the time–frequency domain demonstrates its potential for quantum information processing. It offers a novel scheme for communications with large alphabets, computing with large quantum systems, and new approaches to metrology. It is then crucial to secure full control on the generation of time–frequency quantum states and their properties. Characterizing the spectral phase in particular poses a great challenge, one that has similarly been taken up by classical ultrafast metrology to control ultrashort pulses. In this seminar we will explore novel approaches to the spectral phase characterization of biphoton states spanning from techniques borrowed from classical ultrafast metrology to more directly quantum approaches.