

The effect of temporal jitter on single photon indistinguishability

THESIS

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MASTER OF SCIENCE in PHYSICS

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Abstract

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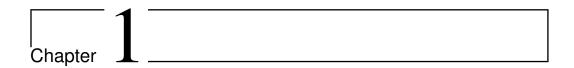
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Introduction

- 1.1 Context
- 1.2 Guide through the chapters

Chapter 2

Theory

- 2.1 Timing Jitter of an Electronic Signal
- 2.2 Electro Optic Modulators
- 2.3 Group Velocity Dispersion and Time Broadening effect on Optical Pulses
- 2.4 Second Order Correlation function
- 2.5 Single Photon Sources
- 2.6 Hong Ou Mandel Interference



TCSPC Measurements on pulses from cascaded EoMs

- 3.1 Description of the experimental setup
- 3.2 Coincidence counts and normalization routine
- 3.3 Analysis of the resuting intensity correlation function
- 3.3.1 Identification of the central peak
- 3.3.2 Study of the temporal jitter



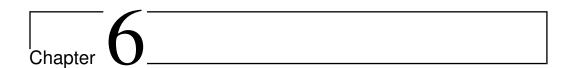
Ti:Sa Pulse Characterization

- 4.1 TCSPC and HBT measurement analysis
- 4.2 GVD Effect on the optical pulses
- 4.2.1 SNSPD's Detector Response function not solvable
- 4.3 Troubleshooting: Practices to obtain a better set of measurements



Single Photon Source Experiments

- 5.1 QD excitation with cascaded EoMs shaped light
- 5.2 QD excitation using Ti:Sa light pulses



Conclusions and outlook