



UNIVERSITÀ DEGLI STUDI DI TRENTO

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DEPARTMENT OF PHYSICS  
DEGREE IN PHYSICS – LAUREA IN FISICA

THESIS

Phase-matching method with temperature control for a  
Four-Wave Mixing phenomena

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**Abstract:** studying Four-Wave Mixing phenomena in a rectangular silicon-based waveguide. Analyze its behaviour at different temperatures to maximize phase-match. Developing a project to build an actual prototype.

# **1 Introduction: Four-Wave Mixing**

Four-Wave Mixing (FWM) is a nonlinear effect of matter

## **2 Four-Wave Mixing**