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Thesis Title	<i>Quantum Information with Continuum Variables: Entropy and entanglement production</i>
Supervisor	A. Karanikas, Associate Professor
Summary	<p>In this thesis the continuous variable entanglement was studied. Specifically, the entanglement generation in Gaussian quantum transformations.</p> <p>Since the quantum information with continuous variables is implemented with quantum optical states and the measurements of the quadratures of the electromagnetic field, the states of the electromagnetic field were studied, like coherent, squeezed and thermal states. The quantum optical transformations were studied, both the passive and active ones. The phase space description of the states of the electromagnetic field is also part of this thesis, as well as the entropy of the entanglement, as a measure of entanglement.</p> <p>Finally, the replica method was analyzed and it was used for the calculation of the entropy of entanglement in two different cases.</p>
Key words	Quantum Information, Continuum Variables, entanglement production, quantum optical transformations
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