



## SYMMETRY, PHASES AND QUANTISATION

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**Abstract.** We explain rich geometric structures that appear in the quantisation of linear bosonic and fermionic systems. By contrasting with the quantisation of general curved phase spaces, we focus on results that shed light on one of the most basic problems in quantisation: the dependence of the quantum Hilbert space on auxiliary data such as the choice of polarisations that is necessary to define a quantum Hilbert space.

*MSC:* 53D50, 32M15, 53D12, 81D70

*Keywords:* anomaly, fermions, geometric phases, geometric quantisation, Maslov index, projectively flat connection, spinor representations, symmetry

*Le plus court chemin entre deux vérités dans le domaine réel  
passe par le domaine complexe.*

Jacques Hadamard

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