Abstract

In this work, we try to understand and characterize quantum correlations. Attempts have been made to focus on the key ingredients of quantum mechanics which differ- entiate quantum correlations from the classical ones. The thesis focuses on entan- glement, its manifestation as Bell nonlocality, quantum contextuality and discord. Furthermore, we try to analyze the implications of quantum correlations for device independent quantum key distribution and to understand the foundations of quantum mechanics at a deeper level.