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Sommario/riassunto

This book highlights the novel research in quantum memory networking, especially quantum memories based on cold atomic ensembles. After discussing the frontiers of quantum networking research and building a DLCZ-type quantum memory with cold atomic ensemble, the author develops the ring cavity enhanced quantum memory and demonstrates a filter-free quantum memory, which significantly improves the photon-atom entanglement. The author then

realizes for the first time the GHZ-type entanglement of three separate quantum memories, a building block of 2D quantum repeaters and quantum networks. The author also combines quantum memories and time-resolved measurements, and reports the first multiple interference of three single photons with different colors. The book is of good reference value for graduate students, researchers, and technical personnel in quantum information sciences.