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BACK TO THE FUTURE: A ROADMAP FOR QUANTUM SIMULATION FROM VINTAGE QUANTUM CHEMISTRY

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PHOTONIC TOOLBOX FOR QUANTUM SIMULATION

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REVIEW OF DECOHERENCE-FREE SUBSPACES, NOISELESS SUBSYSTEMS, AND DYNAMICAL DECOUPLING

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FUNCTIONAL SUBSYSTEMS AND STRONG CORRELATION IN PHOTOSYNTHETIC LIGHT HARVESTING

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I. INTRODUCTION

Nature harvests solar energy with a remarkably high *quantum efficiency*, the percentage of charge carriers created by photons. Recent spectroscopic experiments [1–3] and theoretical models [4–13], provide strong evidence that efficient light harvesting in nature occurs by a quantum mechanism involving sustained electronic coherence [14] and entanglement [15,16] between chromophores. Quantum coherence in the Fenna–Matthews–Olson (FMO) antennae complex of green

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VIBRATIONAL ENERGY TRANSFER THROUGH MOLECULAR CHAINS: AN APPROACH TOWARD SCALABLE INFORMATION PROCESSING

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I. INTRODUCTION

Quantum information processing is a rapidly developing field and has entered different areas in physics and chemistry. The first principal ideas came from the quantum optics community and considerable success was reported with cavity

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ULTRACOLD MOLECULES: THEIR FORMATION AND APPLICATION TO QUANTUM COMPUTING

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DYNAMICS OF ENTANGLEMENT IN ONE- AND TWO-DIMENSIONAL SPIN SYSTEMS

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FROM TOPOLOGICAL QUANTUM FIELD THEORY TO TOPOLOGICAL MATERIALS

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TENSOR NETWORKS FOR ENTANGLEMENT EVOLUTION

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