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Intrashell coherent population transfer among degenerate Rydberg states[1] DANIEL VRINCEANU, Texas Southern University — Quantum computing with high angular momentum Rydberg states is advantageous because of the strong interaction permitted by the enormous electric dipole moments of these states, and also because these states have long radiative lifetimes. However, Rydberg states are accessible only from the ground state, in transitions to low angular momentum states. Based on the exact analytical solution for the dynamics of degenerate states within the Rydberg shell, I investigate ways to design electric pulse shapes that can facilitate coherent population transfers. Examples of low to high angular momentum transfer of Rydberg states are discussed.

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