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Laser-induced coherent population trapping in C_{60}[1] GUOPING ZHANG, Department of Physics, Indiana State University, T. F. GEORGE, University of Missouri-St. Louis — Coherent population trapping and electromagnetically induced transparency represent important advancements in quantum optics and atomic physics, with broad applications from slowing and stopping light, quantum memory, photon control in quantum information processing, storage of light and information, to cancellation of Stark shifts in optical lattice clocks. In this talk, we demonstrates the possibility of generating coherent population trapping in C_{60}. Similar to a three-level Λ system, cm has a forbidden transition between the highest occupied molecular orbital (HOMO) ($|a\rangle$) and the lowest unoccupied molecular orbital (LUMO) ($|c\rangle$), but a dipole-allowed transition between HOMO and LUMO+1 ($|b\rangle$) and between $|b\rangle$ and $|c\rangle$. We employ two cw laser fields, one coupling and one probe. The strong coupling field is switched on first to resonantly excite the transition between $|b\rangle$ and $|c\rangle$. After a delay, the probe is switched on, such that the coherent interaction between the coupling and probe fields traps the population in $|a\rangle$ and $|c\rangle$. This forms a partially dark state in C_{60}, analogous to that in atomic vapors. Turning off the coupling field restores C_{60}'s absorption. Pulsed lasers

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