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**Cavity QED implementation of Three qubit quantum phase gate**  
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Quantum Studies, Texas A&M University — We describe a three qubit quantum  
phase gate in which the three qubits are represented by the photons in a three-modes  
optical cavity. This gate is implemented by passing a four-level atom in a cascade  
configuration through the cavity. We shall discuss the application of such a quantum  
phase gate to quantum searching.

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