SEMINAR ANNOUNCEMENT

"Slow light with electromagnetically induced transparency in optical fiber"

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Slow light with electromagnetically induced transparency (EIT) in the core of optical fibre containing three-level atoms is investigated. The guided modes are treated in the weakly guiding approximation which renders the analysis into a manageable form. The transparency window and permittivity profile of the core due to the strong pump field in the EIT scheme is calculated. For a specific permittivity profile of the core due to EIT, the propagation constant of the weak signal field and spatial shape of fundamental guided mode are calculated by solving the vector wave equation using the finite difference method. It is found that the transparency window and slow light field can be controlled via the optical fibre parameters. The reduced group velocity of slow light in this configuration is useful for many technological applications such as optical memories, effective control of single photon fields, optical buffers and delay lines.

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