Transparency in a Two-Level System Using State Phase Control

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We demonstrate that the two-level system may be transparent to the resonant radiation if the specific conditions for the state coherence are met. The conclusion is based on the analysis of the solution of the chirped pulse adiabatic passage. The principal features of the controlled atomic system response to radiation are manifested and compared to the Rabi flopping solution. The effect of a small non-adiabatic coupling is discussed as well. The phenomenon is used to create the superposition state of the Greenberger-Horne-Zeilinger (GHZ) type in a many-body system [1].

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References

[1] E Pachniak and S A Malinovskaya, www.nature.com/articles/s41598-021-92325-6