# Article information:

Phys. Rev. A 104, 052608 (2021) - Dissipation-enabled resonant adiabatic quantum state transfer: Entanglement generation and quantum cloning  
<https://journals.aps.org/pra/abstract/10.1103/PhysRevA.104.052608>

# Article summary:

1. This article discusses the use of resonant dissipation-enabled adiabatic quantum state transfer processes between the polarization degrees of freedom of a single-photon wave packet and quantum emitters.

2. It is demonstrated that these processes can be used for the passive, heralded, and deterministic preparation of Bell states of two material quantum emitters and for realizing a large family of symmetric and asymmetric quantum cloning processes.

3. These theoretical investigations are expected to be relevant for other scenarios as long as the processes involved are adiabatic so that the Fourier-limited bandwidth of the single-photon wave packet involved is small in comparison with the relevant dissipative rates.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article is written in a clear and concise manner, making it easy to understand. The authors provide sufficient evidence to support their claims, including references to previous work on this topic. The article does not appear to contain any promotional content or partiality towards any particular point of view. The authors also note potential risks associated with their proposed methods, such as nonadiabatic corrections which could affect the accuracy of the results. Furthermore, they provide an overview of both sides of the argument by discussing both advantages and disadvantages associated with their proposed methods. In conclusion, this article appears to be trustworthy and reliable due to its clear presentation and thorough discussion of both sides of the argument.

# Topics for further research:

* Nonadiabatic corrections
* Quantum Monte Carlo methods
* Variational Monte Carlo methods
* Electronic structure theory
* Density functional theory
* Ab initio molecular dynamics

# Report location:

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