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Investigations of an optical memory based on stimulated photon echoes WOLFGANG TITTEL, University of Calgary, MATTHIAS STAUDT, SARA SIMON-HASTINGS, MIKAEL AFZELIUS, VALERIO SCARANI, NICOLAS GISIN, University of Geneva — By interfering photon echoes produced in a Erbium-doped LiNbO3 waveguiding structure, we investigated the preservation of information encoded into the relative phase and amplitudes of optical pulses during storage and retrieval in an optical memory based on stimulated photon echo. Our findings are of particular interest for future long-distance quantum communication protocols, which rely on the reversible transfer of quantum states between light and atoms with high fidelity.

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