# Abstract

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It’s 2025 and today we use photonics in collaboration with electronics. It sets the speeds in terms of the slowest part, electronics, but also requires power when transferring between the two.   
Increasingly more data is being used but we’re about to reach the limit of maximization with electronics, thus transferring over to using photonics from end to end might be the future step. It would have the potential to decrease energy consumption, fastening speeds while the ability to work in parallel due to multiplexing.   
But when searching for photonic storage online, nothing really comes to scope. Holographic storage seems to be the possibility for photonic storage, and it has been worked on in the last couple of decades, and it’s becoming better and better. Using crystals to store interference patterns one can write, read and erase contents of the crystal. Taking the article of “Matching for realizing high-speed reading in holographic data storage system” as reference, I will try to discover, what’s required for a crystal to be good, both for crystals typically used, but also to find out whether or not other crystals currently not popular, could be used.

# References

Matching for realizing high-speed reading in holographic data storage system ( 2024 ), Jing Xu, Yongkun Lin, Linli Zhong, Yuping Ke, Chen He, Sheng Lin, Dakui Lin, Xiao Lin and Xiaodi Tan,   
<https://opg.optica.org/oe/fulltext.cfm?uri=oe-32-26-46259&id=565113>

*Similar tests made previously:* A precision tester for studies of holographic optical storage materials and recording physics ( 1996 ), M.-P. Bernal, H. Coufal, R. K. Grygier, J. A. Hoffnagle, C. M. Jefferson, R. M. Macfarlane, R. M. Shelby, G. T. Sincerbox, P. Wimmer, and G. Wittmann  
<https://opg.optica.org/ao/abstract.cfm?uri=ao-35-14-2360&origin=search>