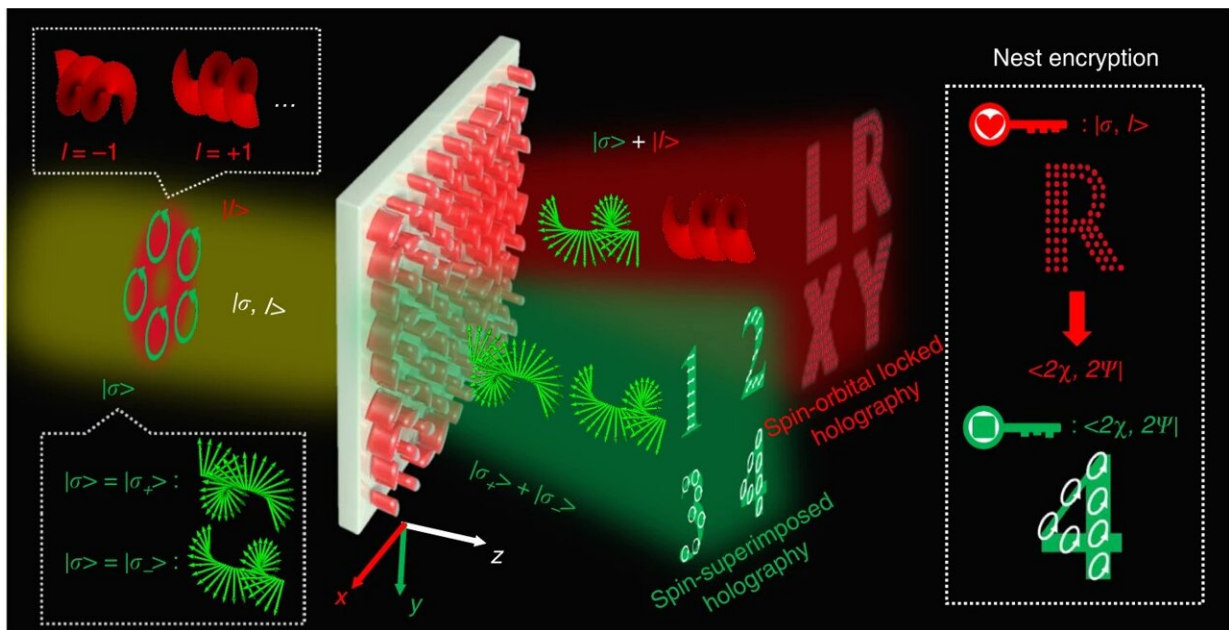


# Bringing angular momentum to holograms and metasurfaces

March 31 2023



Schematic illustration of the AM holography for optical nested encryption. The AM holography depends on arbitrary superimpose the SAM and OAM eigenstates in the output field. For the spin-orbital locked holography (SOLH), the reconstruction of the four holographic images “L, R, X, Y” depends on the incident light carrying certain SAM and OAM values (indicated as  $|\sigma, l\rangle$ ). For the spin-superimposed holography (SSH), the four Arabic numbers “1, 2, 3, 4” with specific spatially distributed SoPs are reconstructed under the incident XLP Gaussian light (indicated as  $|0, 0\rangle$ ). For the optical nested encryption, the reconstructed SOL holographic images are used to perform as the keys (translated to certain SoPs represented as

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