Projected entangled-pair states

In addition to MPS, there is a second type of tensor network representation for quantum many-body states. the so-called projected entangled-pair states.

This kind of state represent the natural generalization of the MPS ansatz to higher spatial dimensions. Like their 1D counterparts, they satisfy the area law, rendering them ideal tools for the simulation of low-energy states in two-dimensional many-body systems on arbitrary lattice geometries.

When sweep of DMRG is applied, the tensors in the auxiliary d.o.f. is optimized (the matrix element is modified step to step) until to a fixed point, finally we reached a fixed point.