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The advantages of Infinite PEPS for quantum induced orders

Numerically determining quantum phases of matter for interacting models in two dimension is still a challenging task. There are many complementary methods to address the challenges with the feasibility sensitive to physical details. Here I identify a class of problems for which infinite PEPS method have advantages. The spontaneous symmetry breaking can have classical origin which can be understood in the space of product states. There are also quantum induced phases such as Fermi surface instabilities and order from disorders. I will give examples to show that for these problems, iPEPS is a preferred choice comparing to cylindrical DMRG.

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