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(54) **LOW POWER ISING SYSTEM**

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(57) **ABSTRACT**
Provided herein are Ising machines having a resonant input mesh driven by a pump signal, a resonant output mesh coupled to the input mesh through a nonlinear component to form a parametric frequency divider (PFD), and the nonlinear component configured to passively activate, responsive to the pump signal exceeding a threshold power, a parametric oscillation between the input and output meshes having an oscillation frequency equal to half an angular input frequency of the pump signal, wherein an output signal of the PFD can be switched between an in-phase state and an out-of-phase state.

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