# Spin liquid and deconfined criticality in maple-leaf quantum magnet

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We investigate the possibility of exotic phenomena, viz. quantum spin liquid (QSL) or deconfined quantum critical point (DQCP), in the spin-$\frac{1}{2}$ Heisenberg model on the maple-leaf lattice, a geometrically frustrated system formed by hexagons (coupling $J_h$), triangles (coupling $J_t$), and dimers (coupling $J_d$). We identify one promising region, given by $J_h > 0$ and $J_t, J_d < 0$, for hosting enticing physics. In this region, the system exhibits an interplay between Néel order and a gapped dimerized singlet phase, holding the possibility of harboring a QSL and a DQCP. Using bond-operator mean-field theory and density matrix renormalization group calculations, we delve into this uncharted territory, revealing tantalizing evidence of the existence of a QSL phase and highlighting its potential as a platform for DQCP.