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*Fast clique minor generation in grid-like qubit connectivity graphs.*

Qubits in a D-Wave quantum annealing processor have connectivity specified by a grid-like “Chimera” graph  $C_{m,n,\ell}$ . In order to solve an Ising spin problem with arbitrary connectivity, the problem must be minor-embedded into a Chimera graph. We describe a combinatorial class of “natively structured” clique minors in Chimera graphs, and use this description to produce a polynomial-time algorithm that finds a maximum natively structured clique minor in a given induced subgraph of Chimera. This problem has immediate applications in the study of quantum annealing.