

## **Approximate and Randomized algorithms for Computing a Second Hamiltonian Cycle**

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In 1946 Cedric Smith proved, using a non-constructive parity argument, that any cubic Hamiltonian graph contains at least two Hamiltonian cycles.

This motivated the following computational problem, which is still largely open: given a Hamiltonian cycle  $C$  in a cubic Hamiltonian graph  $G$ , can we efficiently compute a second Hamiltonian cycle?

In this talk, I will discuss various open questions surrounding this problem and present some efficient approximate and randomized algorithms for related problems.

Joint work with Argyrios Deligkas, George B. Mertzios, and Paul G. Spirakis