Abstract:

The algorithm referred to in the title builds on Luks's powerful group-theoretic divide-and-conquer method (1980) and addresses the bottleneck situation where Luks's method fails to "divide". Luks will continue to "conquer" if an alternative method "divides"; we develop such a partitioning technique.

In the talk we shall outline the algorithm and explain in some detail its group-theoretic core, the "Unaffected Stabilizers Lemma" and the "Local Certificates" routine. The Lemma is used to construct, somewhat implausibly, global automorphisms out of local information -- a key step toward the construction of combinatorial structures to which the partitioning method from the previous day's lecture will be applied, providing the required "divide" step.