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**Convergence of a Quantum Particle Swarm Optimizer** TYLER STAY, CAVENDISH MCKAY, Marietta College — We examine the convergence of a quantum mechanical particle swarm optimizer (QPSO). A number of possible convergence criteria are examined, including a number of measures of swarm width. In contrast with classical particle swarm optimization algorithms, where measures must be taken to prevent swarm explosion, QPSO can suffer from swarm collapse, reducing the effective population size. We present a method for avoiding swarm collapse which is inspired by both by the statistics of interacting fermions as well as the global optimization method simulated annealing.

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