The disadvantages of particle swarm optimization (PSO) algorithm are that it is easy to fall into local optimum in high-dimensional space and has a low convergence rate in the iterative process.

| Optimization method | Advantages | Disadvantages |
|---|---|---|
| PSO | Less parameters tuning<br>Easy constraint<br>Good for multi-objective optimization | Low quality solution<br>Needs memory to update velocity<br>Early convergence |
| APSO | Very efficient<br>High quality solution<br>Local exploitation capability | Suffers from early convergence in the primary stages |

## Advantages and disadvantages of Particle Swarm Optimization

*Advantages :*

1. Insensitive to scaling of design variables.
2. Easily parallelized for concurrent processing.
3. Derivative free.
4. Very few algorithm parameters.
5. A very efficient global search algorithm.

*Disadvantages :*

1. PSO's optimum local searchability is weak