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## **Projection methods --- the convex case**

The Gerchberg-Saxton-Fienup algorithm can be viewed as an alternating projection method for solving the phase retrieval problem. Unfortunately, due to nonconvexity of the constraints, the analysis of the algorithm is difficult.

In this talk, I will survey classical and recent results and open problems on alternating and cyclic projection methods for solving convex feasibility problems. This algorithm can be viewed as a test case for the nonconvex case; its convergence properties are well understood.

Nonetheless, some nagging questions remain open such as behaviour in the presence of inconsistent constraints.