

**MEETING ON TOMOGRAPHY AND  
APPLICATIONS  
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**Tomography at the ESRF and its applications: current techniques and outlook**

**ABSTRACT** A brief overview is given to the main tomography reconstruction tools used at the ESRF and their supported geometries (parallel and conic beams, helical scans) along with the associated distributed computation scheme and the most used phase retrieval algorithms. In addition, some iterative methods which have been more recently implemented are outlined. Tentative guidelines are given to help choose the most appropriate algorithms targeting convergence rate, cost per iteration, scalability and numerical stability. A few examples are given of the most outstanding results. The issue of automatic tuning of regularization is briefly discussed as well as numerical techniques for the removal of ring artefacts. The challenges posed by local tomography problems are mentioned and possible solutions are outlined. To conclude, a few application examples are shown in areas as diverse as materials science and cultural heritage

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