Contribution ID: **208** Type: **poster**

Reconstruction algorithms for under-constrained tomographic datasets

Wednesday, 18 September 2013 12:15 (2 hours)

This project is aimed at developing reconstruction algorithms optimized for tomographic datasets consisting of a low number of projections. In the tomographic imaging, this kind of situation occurs, for example, when the speed of the scan or the dose delivered to the biological specimens is a major concern. Conventional tomographic methods, like the filtered back projection (FBP) or algebraic techniques (ART, SIRT, SART), do not represent the ideal solutions to guarantee clean and faithful reconstructions of the image from a limited number of noisy projections. Our research is, now, dealing with the implementations of an iterative method, called Equally Sloped Tomography, and of an iterative version of GRIDREC, which represents an in-house developed Fourier method. These two iterative techniques are particularly suited to perform reconstructions starting from under-constrained tomographic datasets, since they facilitate the inclusion of a priori knowledge of the sample as well as of denoising routines to keep noise under control. A particular focus lies on in-vivo applications, where dose minimization to the specimen is mandatory, but image quality should be only marginally compromised.

Primary author: ARCADU, Filippo (Paul Scherrer Institut)

Co-authors: Dr MARONE, Federica (SYN-PSI); STAMPANONI, Marco (Paul Scherrer Institut)

Presenter: ARCADU, Filippo (Paul Scherrer Institut)

Session Classification: Poster session I and lunch