Name of the Host Laboratory | CMAP  
Website of the Host Laboratory | http://www.cmap.polytechnique.fr/  
Research Group | EDP pour la physique  
Internship Supervisor | R.G. Novikov  
Internship Subject | Tomography and inverse scattering  
Student's level | ☒ Advanced Undergraduate Students (3rd or 4th year)  
| ☒ Master's students (1st or 2nd year)  
| ☐ PhD students  
Proposed Duration | ☒ 3 months  
| ☐ 4 months  
| ☐ 5 months  
| ☐ 6 months  
Prerequisites | A good acquaintance with the Fourier analysis, in particular, and functional analysis, in general, is necessary.  
Internship description (max. 15 lines) | The tomography is known, first of all, as a research area related with the problem of finding a structure of some object from its radiographs. At present, in addition to this X-ray tomography, several other tomographies are also known, where instead of X-ray photographs some other spectral data are used. In addition, tomographical problems are very much related with problems of inverse scattering. All these problems arise in medical imaging, non-destructive testing and different domains of physics. Related mathematics involves, in particular, integral geometry, partial differential equations, theory of solitons, numerical analysis. The objective of this stage is to give an introduction to this research domain. 

The boxes marked with cross implies eligible