



INTERNSHIP PROGRAM FOR INTERNATIONAL STUDENTS

INTERNSHIP SUBJECT FORM

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 (3 rd or 4 th year) Master's students (1 st or 2 nd 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, numerical analysis. The objective of this stage is to give an introduction to this research domain.

