ANNEX A

RESEARCH PROGRAM NO. 45

The assessment criteria for the qualifications and the interview will be affixed on **3.11.2017** at **9.00** in Dipartimento di Matematica, Via Dodecaneso 35, Genova.

The results of the qualification assessment as well as the names of the candidates admitted to the interview will be affixed on **6.11.2017** at **9.00** in Dipartimento di Matematica, Via Dodecaneso 35, Genova.

The interview will be held on **6.11.2017** at **12.00** in Dipartimento di Matematica, Via Dodecaneso 35, Genova.

Such a notice is equivalent to notification to all intents and purposes. All the candidates, who have not received notification of their exclusion, must sit for the exam, without prior notice, at the examination centre.

As regards candidates, who are not resident or domiciled in Italy, and those, who are resident or habitually domiciled at a distance of more than 300 Km from the selection centre, the interview, if requested, can also be held by electronic means (SKYPE video conference call), promptly contacting Prof. Alberto Sorrentino via the email address: sorrentino@dima.unige.it.

Scientific coordinator: Prof. Alberto SORRENTINO

NO.1 research fellowship - Duration 1 – Annual pre-tax amount: € 19.367.00

Title: Mathematical methods for non—invasive localization of epileptogenic areas.

Description: In order to localize the epileptogenic zone from non-invasive electroencephalographic recordings, it is necessary to solve an ill-posed inverse problem. Several methods are available for this purpose, and their reliability and accuracy have been tested so far mostly with synthetic data. The aim of the project is to quantify the spatial resolution achievable by different inverse methods in vivo, using a unique data set of combined non-invasive and invasive recordings. As a side task, the research fellow will evaluate possible strategies for combining the results from different methods in order to improve accuracy and reliability.

Scientific disciplinary sector: MAT/08 NUMERICAL ANALYSIS

Place: Dipartimento di Matematica

Required degree:
Dottorato di ricerca in Matematica, Dottorato di ricerca in Matematica Applicata, o Dottorato di ricerca in Fisica.

Subjects of the interview:
The interview will mainly assess the candidate's knowledge about the general theory of inverse problems, including regularization and Monte Carlo / Bayesian methods, and their knowledge about the inverse problem of electroencephalography.

The candidate will need to prove his/her knowledge of the English language.