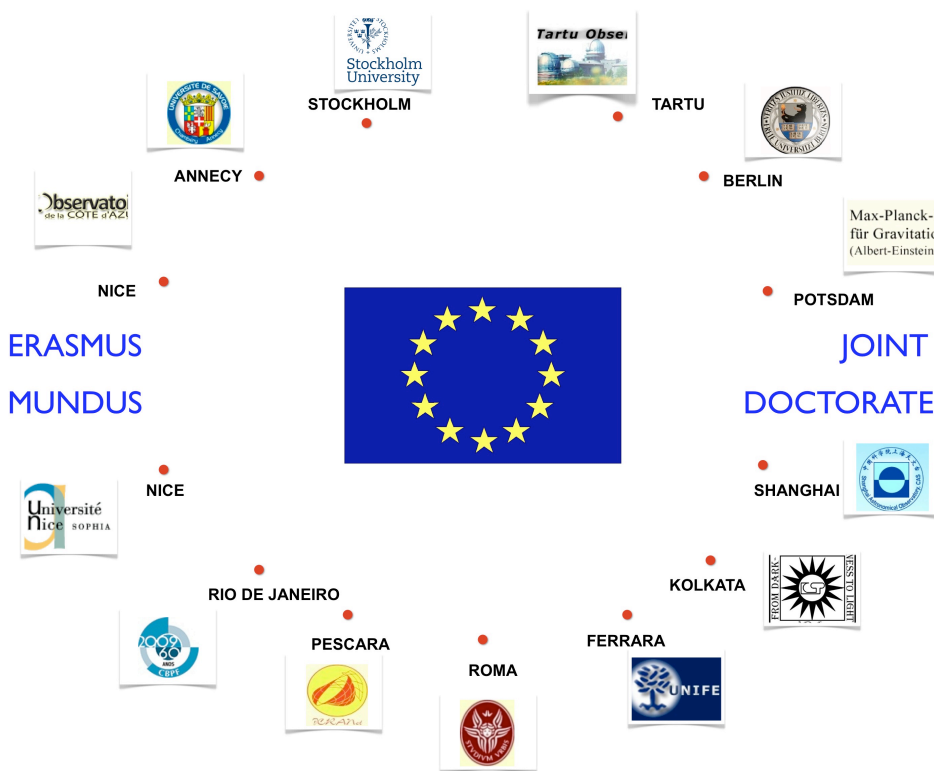


# IRAP PHD PROGRAM



<http://www.irap-phd.eu>



### Annex III

**Report Form to be used for the submission of the**

**Progress Report**

**and/or**

**Further pre-financing request**

**THIS REPORT IS SUBMITTED UNDER THE FRAMEWORK PARTNERSHIP AGREEMENT**

-

**In the context of:**

**The mandatory progress report for the first/second specific grant agreement with the number:**  -  (e.g. "2012-1234")

**and/or**

**The request for the further pre-financing payment for the specific agreement number:**  -  (e.g. "2012-1207")

#### **General instructions**

- You should carefully read Chapter IV of the *Administrative and Financial Handbook* before submitting your report form.  
[http://eacea.ec.europa.eu/erasmus\\_mundus/beneficiaries/documents/action1/sga\\_emjd\\_annex\\_v\\_handbook\\_2012.pdf](http://eacea.ec.europa.eu/erasmus_mundus/beneficiaries/documents/action1/sga_emjd_annex_v_handbook_2012.pdf)
- The report form covers the activities of the entire reporting period. The reporting period is the period elapsed since the start of the activities of the joint programme or the submission of the last report form (i.e. progress report, further pre-financing request or final report). Because of the overlapping activities between consecutive editions (/intakes) of the joint programme, the report must address all ongoing additions as well as the activities implemented for the preparation of the next edition.
- The report must cover both the activities related to the implementation and management of the Joint Doctorate programme by the consortium (including the management of the individual fellowships), and those related to the individual research projects implemented by the EM fellowship holders.
- The report form must be submitted by the beneficiary on behalf of the Erasmus Mundus Joint Doctorate consortium. The declaration at the end of the form confirms that a process of consultation and approval has been carried out by the consortium. It is therefore important that the required information is collected in good time before the deadline for submission of the report.

## Beneficiary check-list<sup>1</sup>

*To be enclosed in the Progress/Final (delete as applicable) report*

**Project N° : 2010-1816**

	Yes	No	N/A
Report signed by the <b>legal representative</b> or by an authorised person*	X		
Agency's <b>template</b> for report respected	X		
Electronic format of the report <b>compatible</b> with the Agency's system	X		
Final costs are presented against the agreed <b>contractual budget breakdown</b> as required in the reporting instructions	X		
In the Financial Report, the amount of <b>interests</b> received on pre-financing is <b>declared</b> or <b>0 EUR is reported</b> if no interest was received (Final report <b>only</b> ; N/A for progress report)	X		
Technical implementation Report (Operational part) <b>enclosed</b>	X		
Financial Report part <b>enclosed</b> (N/A for a progress report with no request for 2 <sup>nd</sup> pre-financing)			X
<b>Copy</b> of the report enclosed	X		
<b>Mobility</b> tool output is enclosed	X		
Supporting documents enclosed (if applicable)	X		

\*If the signatory is not the Legal Representative, a valid document confirming the authorisation to sign on his/her behalf must be added.

<sup>1</sup>Please note that if one (or more) of the above replies are negative, the **report will be rejected**

*In order to facilitate and speed up the process of the assessment of your admissible report, please take also into consideration the following points which are mandatory to submit for Progress Report and 2<sup>nd</sup> Pre-financing (check boxes)<sup>2</sup>*

**CONTENT CHECK LIST**

		<b>YES</b>	<b>NO</b>
1	The <b>narrative part</b> of the report has been submitted in line with the instructions given in PART A; TECHNICAL PART	X	<input type="checkbox"/>
2	<b>EACEA MOBILITY TOOL (EMT):</b> 3.1 All relevant data has been provided and up-dated for Cat. A & B & Windows (candidate's data, mobility tracks, number of payments, amounts received – financial data only mandatory for 2 <sup>nd</sup> pre-financing request-) 3.2 The candidate scholarship data has been extracted (by using the progress report hyperlink) and attached to the report. 3.3 The non-scholarship data has been extracted (by using the "export to pdf" functionality) and attached to the report. 3.4 The extracted lists have been signed and dated by the coordinator.	X  X  X	<input type="checkbox"/>  <input type="checkbox"/> X <input type="checkbox"/>
5	A template of <b>the employment contract(s) used</b> is included in the report	X	<input type="checkbox"/>

**Additionally to submit for 2<sup>nd</sup> Pre-financing (check boxes):**

		<b>YES</b>	<b>NO</b>
1	The <b>financial declaration</b> on the use of the EM Grant is signed by the legal representative of the coordinating institution ( <i>if the signatory is not the Legal Representative, a valid document confirming the authorisation to sign on his/her behalf must be added</i> ).	<input type="checkbox"/>	X
2	Is the <b>total expenditure</b> as indicated in the EMT print-out (EM candidate scholarships) in full coherence with the figures	<input type="checkbox"/>	<input type="checkbox"/>

<sup>2</sup>Please note that if the Agency during the assessment of the above mentioned report detects a problem/ a missing or wrong document related to the mandatory points of the content check list, this will lead to a **request for additional information or even a rejection of the report** which cause unnecessary delays in its treatment.

	indicated in the financial declaration of Part E? ( <b>NB:</b> the only possible difference between the amount indicated in the EMT print-out compared to the financial declaration can be the flat rate/lump sum amount of max. 50.000 EUR)		
3	Has the <b>lump sum/flat rate</b> been added to the total expenditure in the financial declaration of Part E?	<input type="checkbox"/>	<input type="checkbox"/>

- The technical (/narrative) part of thereport must be submitted in the operational language of communication between the institutions involved in the consortium.
- The Doctoral Candidate's fellowship data extracted from the "EACEA Mobility Tool" (Part B of the report) must contain all the relevant information related to the candidates enrolled (with **and** without EM fellowship) funded by the EM Programme during the course edition(s) concerned by this report. See EACEA Mobility Tool User Manual for further information. Any empty fields in the output must be explained in the report.

- The EACEA Mobility Tool User Manual can be retrieved here:

<http://iis-cfprod.eacea.cec.eu.int/mobility/docs/EACEA-Mobility-database-guidelines-EM.pdf>

- The original and one copy of the report must be sent no **later (as per postmark) than by the deadline (15/03/2013) specified in the specific agreement to:**

**Education, Audiovisual and Culture Executive Agency (EACEA)**  
**Unit P4 - Erasmus Mundus and External Cooperation**  
**Avenue du Bourget, n°1 - BOUR 02/29**  
**BE-1140 Brussels**  
**Belgium**

- An electronic version of the progress report must be sent no later than by the deadline (**15/03/2013**) to the following e-mail address: [eacea-em-consortia@ec.europa.eu](mailto:eacea-em-consortia@ec.europa.eu)
- **You are strongly advised to send your report by registered post (express courier) to ensure a record of postage. Additionally, you are advised to keep a copy of it, including any annexes.**
- **Please note that a late submission of the contractually required reports may result in penalties or even cancellation of the specific agreement, in accordance with the General Conditions of the framework partnership agreement.**

## PART A: TECHNICAL PART

### Instructions concerning the technical part of the Report

The technical part of the Report should provide a **summary of the Erasmus Mundus Joint Doctorate implementation during the period elapsed since the submission of the last report** (or the beginning of EMJD in case this is the 1st report ever submitted).

This summary **must cover all ongoing EMJD editions (/intakes)** as well as the preparatory activities already implemented by the consortium for the next edition (/intake).

When answering the questions below the report should

- **When applicable, clearly specify the edition(s)/intake(s) the information provided refers to**
- **Concentrate on the new elements (/developments) as compared to the last report (or the original application in case this is the 1st report ever submitted).**

**Sub-sections 1.a - 1.k and 2 of the report must cover each min. ½ and max. 1 page** (excluding possible enclosures).

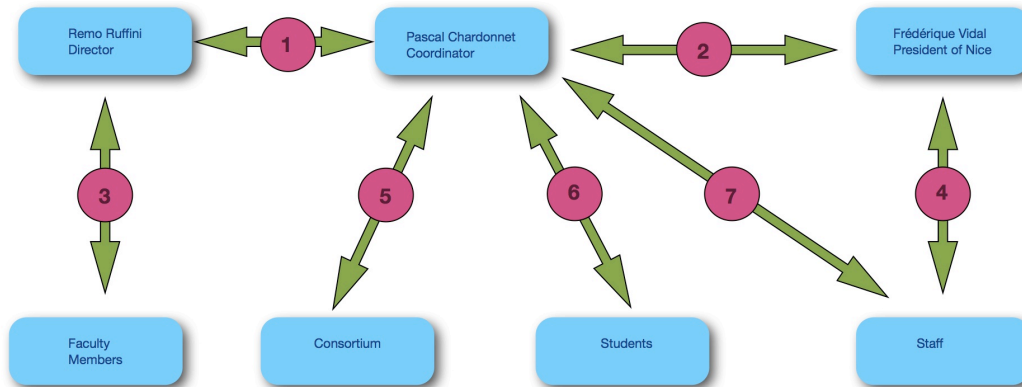
**1. Please describe the consortium activities since the submission of the last report (or the approval of the original application in case this is the 1st report ever submitted) for what concerns:**

**a. The consortium organisation (administrative, academic, research and financial management) and specific roles of individual partners (including, if applicable, associated partners)**

- Our IRAP PhD program is composed of a Scientific Staff in charge of all the scientific part: selection of the candidates, thesis projects, supervising the progress of each candidates, preparation of the PhD School in Relativistic Astrophysics.
- This staff is directed by Prof. Remo Ruffini. In add to this staff, we have an administrative staff in Nice University.
- The coordinator is Prof. Pascal Chardonnet

After the selection meeting and the approval of the main list by the Agency, our candidates are officially informed by the coordinator (see Annexe-1). We gave them 10 days in order to accept our offer. Generally our candidates accepted immediately and then the coordinator start to write “the convention d’accueil”. This document is essential in order to obtain French visa (Annexe-2). At the same time, the coordinator communicate the names of the PhD students to Marsh Insurance. In such way, we could send by email the student card (Annexe-3). This is very useful because certain consulates asked an Insurance. The original card is given to the student at his arrival in Nice.

The organization chart is attached in hereby (please notice that the name of the new President of Nice University is Prof. Frédérique Vidal. It should be changed in the EM Mobility Tool)



TASKS	ACTORS	OBJECTIVES
1	Director/Coordinator	Preparation of the new Edition: milestones for the new edition
2	President of Nice/Coordinator	Preparation of progress reports - Signatures
3	Director/Faculty	Preparation of the School- Selection committee -Thesis Subjects
4	President of Nice/Staff	Signatures
5	Coordinator/Consortium	Report every two months of the activities and to prepare important dates
6	Coordinator/Students	Weekly email for enquiring of the local status of students
7	Coordinator/Staff	Daily email for the standard staff: reimbursements - payment -

Being assigned to the Office of International Projects Erasmus Mundus, Mr Emmanuel Losero deals with the "EMJD International Relativistic Astrophysics" in taking care of orders, mission's orders and refunds or bills payment as well as verifying that the students are paid every month and by maintaining the budget. At the accounting office, Mrs. Julie Coquin is responsible for collecting EACEA revenue in order to place the dates of opening and closing of the agreement. She manages the "project builder", that is to say that she organizes the credits in 2 parts: one part "operating costs" and one "payroll" in accordance with the convention established by the EACEA. She also establishes thresholds limiting expenditures and the financial center where the credits are. On the other hand, Emmanuel Losero closely works with the Finance department of the Faculty of Sciences, led by Mrs. Annie Vidal, through Mrs. Cathy Siveri who checks the expenses, then Mrs. Veronica Gallo from accounting agency makes payments. Finally, Julien Chabert saves providers records on the software "SIFAC" so that banking informations could be stored in the database. The Accounting office also performs the grants' payment. Pina Barbaro is in close contact with the students for Bank account, Social security problem, booking rooms in Nice

- Before the arrival of the students the coordinator communicates to the staff in Nice the names and identity of the winner.

- In such way, the employment contract is prepared before the arrival of the students.
- At the arrival in Nice in September, our non European student open a bank account in Nice. We have an agreement with a Bank: the credit card is free and the bank give 50 euros welcome for all our students.
- At the same period, our students will also do the other formalities for Social Insurance Card and for Residence Permit.

#### **b. The payment modalities of the individual fellowships**

Since all bureaucratic part are well prepared the students can received their salary on the European bank very easily. The participation cost are also sent directly to the host institution.

#### **c. Promotion activities for ongoing and future editions/intakes**

First of all we have a dedicated website: [www.irap-ph.eu](http://www.irap-ph.eu)

This allows us to promote all the activities of our PhD program: all the thesis subjects are online. This year, we have add three important part:

- a full integrate online registration (see numerous annexes on web) with possible help at any stage of application. All our candidates are very satisfy by this new procedure. It is very easy and each candidate can return up to the deadline to its own application and modify. This is a very good process. Then the referee have, invited by candidates, can also have access to the application and put an evaluation and upload easily a letter of recommendation. In add, the coordinator could invite numerous evaluators that have access to all applicants and put individual evaluation. At the end of the call, we could extract a full pdf (or excel table ) of all candidate or individual file for each candidate. This procedure is quite new and very powerful. I have put in annexe all the pages, and I hope that the Erasmus Mundus Team help us also to improve this procedure. I already asked candidates. They find this procedure “easy” and “friendly”.
- An intranet section for all partner members and for all our EMJD students. We notice that to send important documents by emails is “old fashion” and the best is to have a secure place where to store all important of the live of our consortium. I have put also the presentation of students during meeting, so prof could have access to the presentation of other students. (see Annexe 5 and <http://irap-phd.eu/page15/page15.html> button “intranet”)
- This year we have bough a independent server to be sure that all documents regarding the calls couldn’t be violate from external part. Only our consortium member have access to this server. We have declare this activity to the CNIL in agreement to their request. When the candidate apply, they are all informed individually about the personal treatment of their personal data (see page “submit” in Annexe)
- Now, regarding promotion, for this new call 2013 (fourth edition) we have realized 2000 posters sent all over the world using ICTP network as previous years. This year we do not have realized advertisement in Nature and CERN. But, in addition, we have used the network Campus France to distribute our activities and also : <http://www.inspirehep.net>. Apparently this new method is very successful since we



get more students (162) than last year (129) and we spend less money in adverts. This is an example of good practice that could be underlined.

- 
- Using the network of Campus France, we get many candidates, most of them are weak, but this also tells us some expectation of these countries in front of European Program in Education. I notice reading the application a great hope toward Europe. Maybe it should be a way to come up to somebody's expectations.
  
- The coordinator has created a dedicated page on Facebook where some activities of our program are given: Irap Phd-Program
  
- We have also created a global document for all the cycle accessible online (63 Mb): [http://laph.cnrs.fr/pg-nomin/chardon/IRAP\\_PhD/EMJD-Students.pdf](http://laph.cnrs.fr/pg-nomin/chardon/IRAP_PhD/EMJD-Students.pdf)
  
- Acknowledgements : we have imagined a canonical way for the students to thank ERASMUS MUNDUS in their papers. This is a way to promote the Erasmus Mundus Program inside the scientific community :

for the cycle I (2010-2013):

"Student Name Student Surname" is supported by the Erasmus Mundus Joint Doctorate Program by Grant Number 2010-1816 from the EACEA of the European Commission

for the cycle II(2011-2014):

"Student Name Student Surname" is supported by the Erasmus Mundus Joint Doctorate Program by Grant Number 2010-1640 from the EACEA of the European Commission

for the cycle III(2012-2015):

"Student Name Student Surname" is supported by the Erasmus Mundus Joint Doctorate Program by Grant Number 2010-1710 from the EACEA of the European Commission

**d. The procedures followed and measures taken for the identification of research projects, the selection of candidates and the allocation of individual research projects,**

This is the domain of the Faculty. The coordinator is also the web manager and asks regularly the Faculty for new thesis projects. Once they are approved, they are put on the website. The Faculty is also in charge of the selection process in January-February. A secure web site has

been created. All personal data are deleted after selection. Only the coordinator keep this data only for a limited period : the duration of the edition. We have informed the CNIL of our procedure to select candidates since personal data are involved. We have obtained their agreement provided we put the following sentence in our personal application form for the candidates

*« The candidate is informed and has agreed to the fact that if he/she is selected (proposed for a fellowship, put on the reserve list, or enrolled on a self paying basis) his data may be used for the purposes of evaluating the Erasmus Mundus Programme and will be made available to the Agency, the EM National Structures, the EU Delegations and the Erasmus Mundus Doctorale candidate and Alumni Association (EMA), acting as stakeholders of the programme. The personal data is collected and used in accordance with Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on "the protection of individuals with regard to the processing of personal data and on the free movement of such data". The candidate is informed and has agreed to the fact that his data will be also transferred to Non-EU partners of our consortium for the quality assessment of the applications. PLEASE READ THIS TEXT CAREFULLY. BY CLICKING THE "I AGREE" BUTTON AT THE TOP, YOU AGREE TO THESE CONDITIONS. »*

#### **e. The delivery of the taught part of the EMJD**

- The specificity of our program is the creation of **European PhD Training School in Relativistic Astrophysics**. We organized each September a one-month meeting in Nice. This help us to do the administrative formalities for the new students and to create a “spirit of a School” at Doctoral Level since we mix all editions. Now all our students know themselves and it happens that they visit each other in special occasions like birthday. They also exchange scientific information on links, interesting papers. The feedback from them is that our idea is very welcome. They didn’t expected such “School” at PhD level.
- We are thinking to use also iTunes U to promote video of our courses.
- All the courses of our PhD Schools are online and therefore are accessible to everyone:

<http://irap-phd.eu/page9/page9.html>

These courses given by leading experts in the fields have a great success not only among our PhD students but also to other students and researchers that have access freely to the result of our PhD School in Relativistic Astrophysics.

#### **f. The overall supervision of doctoral candidates**

This is the matter of the Faculty. But we also used the expertise of external professor visiting us during our PhD Schools.

- The Doctoral Candidate is required to provide her/his Thesis Adviser (and Co-Adviser, if applicable) of all necessary reports. It is her/his duty to point to the Thesis Adviser

(Co-Adviser) any difficulty encountered. The frequency of regular work meetings (e.g. weekly periodicity) is agreed upon at the beginning of the thesis between Doctoral Candidate and Adviser/Co-Adviser. All parties are bound to conform to the obligation of regular work meetings.

- Two yearly reports on the progress of the thesis work is prepared by the Doctoral Candidate and presented in the two one-month joint scientific activities. A full list of courses, seminars, conferences and other relevant activities carried out is included. These reports is also submitted to the Faculty.
- The Thesis Adviser accepts to reserve a significant part of her/his time to follow the Doctoral Candidate's work and takes full responsibility for the thesis supervision, even when a Thesis Co- Adviser contributes to it. She/he will actively participate in deciding how the work should progress on the basis of partial results, will point out to the Doctoral Candidate the scientific progress that her/his results are bringing, as well as the possible objections and criticism.
- The Thesis Adviser, with the assistance of the Co-Adviser (if applicable), discuss twice a year the progress report with the Doctoral Candidate, assess its content and propose the necessary modifications before it is sent to the Faculty. The Thesis advisor may submit an assessment to the Faculty, if deemed necessary, and particularly whenever problems with the Doctoral Candidate's work begin to appear. The Doctoral Candidate receives a copy of such an assessment.
- The services offered to doctoral candidates (and more particularly with regards to the mandatory mobility parts of their EMJD) and the languages used (regarding research activities and language learning possibilities)
- The Faculty monitors the scientific progress of each Doctoral Candidate. In agreement with the Thesis Adviser and, if necessary, of additional experts sought for this purpose, the Faculty may suggest ways of improving the Candidate's overall progress.

**g. The concrete measures taken by the consortium with the relevant ethics committees and/or national/local authorities to address, where applicable, ethical issues arising from the research activities of the Doctoral Candidates**

This is the matter of the Faculty. But we also used the expertise of external our scientific subject “Relativistic Astrophysics” is not related directly to ethical issues. But we took care of personal data using the service and the control of the CNIL ( <http://www.cnil.fr/> ) where we have declare our website and our activities of promotion and recruitment of PhD students.

**h. The services offered to doctoral candidates (and more particularly with regards to the mandatory mobility parts of their EMJD) and the languages used (regarding research activities and language learning possibilities)**

The mobility of our students is enhanced due to the fact that we have a solid scientific network and each partner provide with great facility the lodging house, office and local help for students during mobility period.

Due to our spirit of « PhD School » the mobility is also seen improved by the fact that all students know themselves. In some case they already visited the new institute for mobility because they have visited their friends there for birthday occasion !

Doctoral Candidate must validate at least 180 hours of courses, lectures and seminars every year – as attested by the Faculty .

In the host institutions, in addition to courses, seminars and participation in topical schools, the students also follow language courses in order to foster their practice and knowledge in languages such as English, French, German, Italian or Swedish.

#### **i. The EMJD evaluation and monitoring mechanisms**

One of our evaluation is obtained directly from our PhD students. Each year the coordinator asks the students to write a free report about all the activities of the past year. Then the coordinator present this report to the consortium and propose improvements related to students 'suggestions.

The IRAP PhD Faculty, composed of up to three Members for each Institutions is in charge of evaluating and monitoring the Program. Namely :

- Defines the admission procedure of the students to the IRAP PhD program, defines the academic curriculum of the program, assigns thesis topics, assigns the first and second supervisor to each candidate, decides whether candidates performance is good enough to grant continuation of the program,
- Authorizes the defence of the thesis and approves the composition of the defence committee.
- Oversees the fulfilment of the duties of the IRAP PhD candidates, the duty of the host Institutions and the duty of the coordinating Institution
- It activates mediation procedure for any problems would arise in the IRAP PhD Program
- Appoints eligible new partners to the Consortium, organizes workshops
- Decides marketing/advertising strategies of the program as well as the networking between current, past and perspective candidates and their relationship with the labour market
- Oversees the quality of the program, also by collecting evaluation forms from the candidates

We have add an intranet page to all students and all the consortium members where all relevant documents are accessible (progress reports, guide, presentations of students, PhD School, Consortium agreement, Candidate Doctorale Agreement, consortium meeting..).

<http://irap-phd.eu/page15/page15.html>

In such way, each member of our consortium (Professors, Administrative Stall and also students) can have access to all information about our PhD program. See Annexe-4

**j. The final degree recognition status in each of the degree awarding institutions (and more particularly the progress made toward the award of joint degrees)**

During the year 2011 an important step has been overcome by a text of the French Ministry of Education on Joint Diploma.

This full text can be downloaded using the link :

<http://www.2e2f.fr/docs/circulaire-diplomes-conjoints-du-9-juin-2011.pdf>

**B.O.** Bulletin officiel n° 23 du 9 juin 2011  
Annexe 1

<p><b>MASTER</b>          délivré en partenariat international par l'Université de [...] avec l'Université de [...] et l'Université de [...]  <i>Mentions relatives au diplôme de master délivré dans les pays, par exemple :</i>  <b>MASTER OF ARTS</b>          awarded by the x partner universities of [...] and [...]  <b>LAUREA SPECIALISTICA</b>          rilasciata in partenariato internazionale dall'università di [...] con l'università di [...] e l'università di [...]</p>		
<p><b>RÉPUBLIQUE FRANÇAISE</b>  <b>MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR ET DE LA RECHERCHE</b></p>	<p><b>UNITED KINGDOM</b>  <b>UNIVERSITY OF</b></p>	<p><b>REPUBBLICA ITALIANA</b>  <b>UNIVERSITÀ</b></p>
<p>Vu le code de l'éducation ;          Vu le décret n° 84-573 du 5 juillet 1984 modifié relatif aux diplômes nationaux de l'enseignement supérieur ;          Vu le décret n° 2002-481 relatif aux grades et aux titres universitaires et aux diplômes nationaux ;          Vu le décret n° 2005-450 du 11 mai 2005 relatif à la délivrance de diplômes en partenariat international ;          Vu les textes autorisant l'université ... de ... , l'université ... de ... , à délivrer des diplômes de niveau master dans le cadre de l'Espace Européen de l'Enseignement Supérieur ;          Vu l'arrêté du 25 avril 2002 relatif au diplôme national de master ;          Vu l'arrêté ministériel du ..... relatif à l'habilitation de l'université de [...] à délivrer des diplômes nationaux ;          Vu les pièces justificatives produites par M ..... né le ..... à ..... en vue de son inscription au diplôme de master ;          Vu les procès-verbaux du jury attestant que l'intéressé(e) a satisfait au contrôle des connaissances et des aptitudes prévus par des textes réglementaires ;          Le diplôme de <b>MASTER</b> (intitulé du domaine)....., à finalité (recherche ou professionnelle).....mention..... spécialité.....          est délivré à M. [prénom, NOM patronymique]          au titre de l'année universitaire 2010-2011          et confère le grade de Master,          pour en jouir avec les droits et prérogatives qui y sont attachés.</p> <p><b>Décerné à [ ], le [ ]</b></p> <p>Le titulaire      Signature du chef d'établissement      Le Recteur de l'académie, chancelier des universités</p> <p>Numéro du diplôme :</p>	<p><b>MASTER OF ARTS</b></p> <p>[Date et lieu de délivrance par l'établissement d'enseignement supérieur partenaire]          Signature du chef d'établissement d'enseignement supérieur étranger</p>	<p><b>LAUREA SPECIALISTICA IN</b></p> <p>[Date et lieu de délivrance par l'établissement d'enseignement supérieur partenaire]          Signature du chef d'établissement d'enseignement supérieur étranger</p>

© Ministère de l'Enseignement supérieur et de la Recherche > [www.enseignementsup-recherche.gouv.fr](http://www.enseignementsup-recherche.gouv.fr) 1 / 2

On the basis of this text we are building an exemplary of Joint Diploma (Annexe-6)

- The thesis is subject to only one examination (thesis defence) recognized by all Degree Awarding Institutions.
- The thesis defence will take place at the Host Institution following the local rules and regulations. The Thesis Adviser and Co-Adviser (if applicable) shall be present at the Defence.

- The thesis is written in English as the common language to all the Institution of the IRAP PhD a summary in the language of the Host Institution may be required, depending on local regulations.
- The Thesis Adviser, in agreement with the Candidate, proposes to the Faculty at least two Referees, external to the IRAP PhD and its Partner Institutions, whose duty is to assess the quality of the manuscript and its correctness.
- The Faculty immediately informs the Doctoral Schools, of its decision and nominates the Referees. The latter receives the complete manuscript with sufficient time for a review – in any case no less than 2 weeks.
- Each Referee, following her/his assessment duly and amply documented in a written report in English, recommend or not the authorization for the Thesis Defence.
- The authorization to defend the Thesis is granted by the Host Institution hosting the Proceedings in agreement with the regulations stipulated in the Consortium Agreement.

Here we report the Article 5 –A) of our Consortium Agreement regarding the degree awarded :

“

#### ARTICLE 5A) – DEGREE AWARDING INSTITUTION

§1. Degree-Awarding: At the end of their curriculum the Students are awarded a joint Ph.D. title signed by the Rectors/ Presidents of the six Academic Institutions of the IRAP PhD consortium. See also paragraph 11 of the Doctoral Candidate Agreement ( see Annexe 3)

§2. The language of the thesis, the authorization to defend the thesis, the composition of the defence committee, the thesis defend procedure and intellectual property have been outline in the paragraph 10.1, 10.2, 10.3, 10.4, 12 of the Doctoral Candidate Agreement ( see Annexe 3)“

#### **k. Other related activities that may directly benefit the EMJD**

2. Describe **any positive experiences and/or, problems encountered** during the period covered by this report related to the Erasmus Mundus Joint Doctorate course management and possible improvements to be envisaged

This year we have modified our application procedure via a new website on a server dedicated uniquely to our PhD program. It is very easy to apply and the student can modify their application up to the deadline by adding new documents. There is a part for evaluators and for referee. If we look to the reaction of students of this year, they are very satisfy by this procedure. Of course there is always the possibility to request help at any moment of the application. See Annexe-Web

3. If applicable, provide herein the necessary feedback where a follow-up has been requested by the Agency in the previous progress report and/or final report.

### Summary Data

	Edition	3 <sup>rd</sup> Country Doctoral Candidates		EU Doctoral Candidates	
		With an EM fellowship	Without an EM fellowship	With an EM fellowship	Without an EM fellowship
Number of Doctoral candidates enrolled (for the ongoing editions)	1	6		4	
	2	6		3	
	3	6		3	
	4				
	5				

	Name of the Degree awarding institution <i>(add rows if necessary)</i>	Name of the Erasmus Mundus Degree awarded
<b>A</b>	University of Nice Sophia Antipolis	PhD in Relativistic Astrophysics
<b>B</b>	University of Savoie	PhD in Theoretical Physics
<b>C</b>	University of Roma La Sapienza	PhD in Relativistic Astrophysics
<b>D</b>	University of Ferrara	PhD in Physics
<b>E</b>	University of Stockholm	Doctor of Philosophy Degree
<b>F</b>	Freie University of Berlin	PhD in Natural Things
<b>G</b>		

4.

## PART B: EM FELLOWSHIP HOLDERS REPORT

<b><i>Doctoral Candidate name (first name - LAST NAME)</i></b>	<b><i>Enrolment date in the Joint Programme*</i></b>
<i>Andrey BARANOV</i>	<i>01.09.2010</i>
<b><i>Name and Institution of the Doctoral Candidate Supervisors*</i></b>	
<i>LAPTH , Université de Grenoble</i>	
<b><i>Title of the EMJD research project*</i></b>	
<i>Pair instability supernovae and gamma-ray bursts</i>	
<b><i>Short summary of the EMJD research project* (the summary must include the mandatory mobility elements as well as the taught/training components and the main milestones for the doctoral candidate supervision and/or research deliverables)</i></b>	
<i>My work is focused on numerical simulation and physical analysis of Pair-Instability supernovae explosions. This phenomenon is related to the end of life of very massive stars, which are very important element of stellar evolution and galaxy formation, and also could be related to gamma-ray bursts (GRBs).</i>	
<b><i>Main activities implemented by the doctoral candidate since the delivery of the last report</i></b>	
<p><i>I have continued investigation of explosion of pair-instability supernova (PISN) in order to have self-consistent description of production of GRBs with PISNe. Since light-curves of emission of GRBs are very diverse and don't show any common template we proposed an idea that single GRB is a superposition of many individual spikes coming from different hot regions. To check the validity of this scenario I proposed simple mathematical abstraction for the process of emission. I wrote Monte-Carlo code that simulates light-curves from randomly distributed blobs of hot matter. Simulations show that this scenario gives large variety of possible light-curves similar to observed in GRBs.</i></p> <p><i>Other direction of research was spectra of emission of GRBs. Though spectrum of GRBs is non-thermal, recent studies [F.Ryde, ApJ 614(2) (2004); S.Guiriec et al., ApJ Letters 727:L33 (2011)] show presence of thermal component in prompt emission. We propose that overall spectrum is formed by reprocess of initial thermal emission and different physical processes are responsible for low- and high-energy part of spectrum. Low energy emission could be explained by Bremsstrahlung process in regions with lower density. This process naturally explains photon number spectrum with power-law index '-1' observed in many bursts. The high-energy part is formed by inverse-compton scattering of soft photons on electrons in hot regions.</i></p> <p><i>An article on PISN explosion is submitted to Astronomy &amp; Astrophysics.</i></p> <p><i>I have attended conferences:</i>  <i>IAU Symposium 279 «The Death of Massive Stars», Nikko, Japan, March 12-16, 2012</i>  <i>13th Marcel-Grossmann meeting, Stockholm, Sweden, July 1-7, 2012</i></p> <p><i>EMJD Schools:</i>  <i>4-8 June 2012</i>  <i>1-21 September 2012</i></p>	
<b><i>Main activities planned to be implemented during the 12 months following the submission of this report</i></b>	
<i>I have to finish an article on application of PISN to description of GRBs. I need to write manuscript for my PhD defense, probably in summer 2013.</i>	



<b>Doctoral Candidate name (first name - LAST NAME)</b>	<b>Enrolment date in the Joint Programme*</b>
Bernardo – MACHADO DE OLIVEIRA FRAGA	09/01/10
<b>Name and Institution of the Doctoral Candidate Supervisors*</b>	
Massimo della Valle – Osservatorio di Capodimonte Remo Ruffini – ICRANet - Nice	
<b>Title of the EMJD research project*</b>	
Galaxy Clusters and Galaxy formation	
<b>Short summary of the EMJD research project*</b> (the summary must include the mandatory mobility elements as well as the taught/training components and the main milestones for the doctoral candidate supervision and/or research deliverables)	
<p>Summary:</p> <p>We are studying a unified model for dark matter halos and compact objects in the center of galaxies (as opposed to the traditional black hole paradigm) consisting of fermions at a finite temperature. This model explains the flat rotation curves of galaxies far away from the center without the need for a supermassive black hole.</p> <p>On another project, we are studying blazars, a special type of Active Galactic Nuclei (AGN) with the jet pointing towards us. We are currently building a catalog of high energy peaked blazars based on the WISE infrared satellite of NASA. With this we can detect potential TeV emitters and work towards building a full catalog of blazars in order to do a more thorough study of these sources.</p> <p>-Erasmus Mundus School, Nice, France, 5-8 June, 2012.  -Erasmus Mundus School, Nice, France, 3rd – 19th September, 2012.  -Marcel Grossmann meeting, Stockholm, Sweeden, 1st - 7th July, 2012  <a href="#">-Current Issues on Relativistic Astrophysics - November 5-6, 2012 - Seoul (South Korea)</a>  <a href="#">-Texas Symposium- December 16-21, 2012 – Sao Paulo (Brazil)</a></p>	
<b>Main activities implemented by the doctoral candidate since the delivery of the last report</b>	
<p>In the dark matter model, we extended and compared our mass ranges with other limits known in the literature, and we confronted our model with the observations of dwarf galaxies, finding a range for our parameters.</p> <p>On the blazars, we have completed the selection process and we are ready to publish our catalog of high energy peaked blazars.</p>	
<b>Main activities planned to be implemented during the 12 months following the submission of this report</b>	
<p>Get a more complete sample of dwarf galaxies to test our dark matter model further, and try to merge this work with the work of Prof. Ruffini on a fractal universe, providing a full model of structure formation.</p> <p>Continue building the full blazar catalog and use it to predict how much of the cosmic background radiation may be contaminated by discrete sources. Also study the variability of these blazars to understand its emission processes.</p>	

<b>Doctoral Candidate name (first name - LAST NAME)</b>	<b>Enrolment date in the Joint Programme*</b>
Alberto BENEDETTI	01.09.2010
<b>Name and Institution of the Doctoral Candidate Supervisors*</b>	
Prof. Remo Ruffini, ICRANet (Pescara, Italy), University of Rome "La Sapienza" (Rome, Italy)	
Dr. Gregory Vereshchagin, ICRANet (Pescara, Italy)	
<b>Title of the EMJD research project*</b>	
Emission from the photosphere of a GRB: kinetic approach	
<b>Short summary of the EMJD research project*</b> (the summary must include the mandatory mobility elements as well as the taught/training components and the main milestones for the doctoral candidate supervision and/or research deliverables)	
<p><b>Schools:</b></p> <ul style="list-style-type: none"> <li>- IRAP Ph.D. Erasmus Mundus School, May , 2011, Nice (France)</li> <li>- IRAP Ph.D. Erasmus Mundus School, September , 2011, Nice (France)</li> </ul> <p><b>Meetings:</b></p> <p>Advances in Computational Astrophysics: methods, tools and outcomes. Cefalù (Sicily, Italy), June 13-17, 2011</p> <p><b>Seminars:</b></p> <ul style="list-style-type: none"> <li>- On the frequency of oscillations in the pair plasma generated by a strong electric field. IRAP Ph.D. Erasmus Mundus Workshop, April 5, 2011, Pescara (Italy)</li> <li>- On the frequency of oscillations in the pair plasma generated by a strong electric field. IRAP Ph.D. Erasmus Mundus Workshop, April 3-8, 2011, Les Houches (France)</li> <li>- Oscillations in the pair plasma generated by a strong electric field. Italian-Korean Meeting, July 4-9, 2011, Pescara (Italy)</li> <li>- Electron-Positron plasma oscillations: hydro-electrodynamic and kinetic approaches. IRAP Ph.D. Erasmus Mundus School, September 7, 2011, Nice (France)</li> <li>- Boltzmann equation: from an interacting plasma toward the photospheric emission of a GRB. IRAP Ph.D. Erasmus Mundus Workshop, October 6, 2011, Les Houches (France)</li> <li>- Electron-Positron plasma oscillations: hydro-electrodynamic and kinetic approaches. Galileo-Xu Guanqui Meeting, October 12, 2011, Beijing (China)</li> </ul> <p><b>Articles:</b></p> <p>On the frequency of oscillations in the pair plasma generated by a strong electric field, A. Benedetti, W.-B. Han, R. Ruffini, G. V. Vereshchagin, Phys.Lett.B698:75-79,2011</p>	
<b>Main activities implemented by the doctoral candidate since the delivery of the last report</b>	
<p><b>Last year research:</b></p> <p>Attendance of international meetings and schools with presentation of recent results:</p> <ul style="list-style-type: none"> <li>- Erasmus Mundus School, Nice, France. September 2012.</li> <li>- Marcel Grossmann meeting, Recent Developments in Theoretical and Experimental General Relativity, Gravitation, and Relativistic Field Theories, Stockholm, Sweden. July 2012.</li> <li>- "Numerical technique for the Boltzmann equation solution". IRAP Ph.D. Erasmus Mundus School, Nice, France. September 2012.</li> <li>- "Phase space evolution of pairs created in strong electric fields". Marcel Grossmann meeting, Stockholm, Sweden. July 2012.</li> </ul> <p>- Application of the kinetic approach to the study of phase space evolution of pairs created in strong electric fields. This work has been recently published on the journal Physics Letters A. Part of this work has been carried out during the mobility at the Royal Institute of Technology (KTH) in Stockholm (April-July 2012).</p>	

- Study of the photospheric emission in Gamma-Ray Bursts using an extension of the kinetic method previously adopted. Ongoing collaboration on this topic with prof. Felix Ryde at the Royal Institute of Technology (KTH) in Stockholm (February-April 2013).

*Main activities planned to be implemented during the 12 months following the submission of this report*

***Next year research:***

- Comparison between observed Gamma-Ray Bursts spectra and our numerical results.
- Preparation of the paper on the photospheric emission to be sent to a refereed journal.
- Writing and defending PhD thesis.

<b>Doctoral Candidate name (first name - LAST NAME)</b>	<b>Enrolment date in the Joint Programme*</b>
<i>Sheyse Martins de Carvalho</i>	<i>September 2010</i>
<b>Name and Institution of the Doctoral Candidate Supervisors*</b>	
<i>Supervisor: Jorge A. Rueda, ICRANet and Sapienza University of Rome Co-Supervisor: Mario Novello (ICRANET), Nice.</i>	
<b>Title of the EMJD research project*</b>	
<i>Electrodynamics of Neutrons Stars</i>	
<b>Short summary of the EMJD research project*</b> (the summary must include the mandatory mobility elements as well as the taught/training components and the main milestones for the doctoral candidate supervision and/or research deliverables)	
<p><i>Summary:</i></p> <p><i>The main goal of the project is to study the effects of the temperature and rotation on the structure of white dwarfs (WDs) and neutron stars (NSs). As a first step of the work, we study the effects of finite temperatures both on the equation of state (EOS) and the macroscopic structure of WDs. We apply the results to the specific case of observed low mass WDs, companions to NSs in binaries. We study also the cooling sequences of NSs in the case of global and local charge neutrality as well as for strange stars. The results are compared with observations.</i></p> <p><i>Mandatory Mobility:</i></p> <p><i>-Erasmus Mundus School, Nice, France, 5-8 June, 2012.</i></p> <p><i>-Erasmus Mundus School, Nice, France, 3rd – 19th September, 2012.</i></p> <p><i>-Marcel Grossmann meeting, Stockholm, Sweden, 1st - 7th July, 2012</i></p> <p><i><a href="#">-Current Issues on Relativistic Astrophysics - November 5-6, 2012 - Seoul (South Korea)</a></i></p> <p><i><a href="#">-Compact Stars in QCD phase diagram III- December 12-15, 2012 – Guarujá, SP (Brazil)</a></i></p> <p><i><a href="#">-Texas Symposium- December 16-21, 2012 – Sao Paulo (Brazil)</a></i></p>	
<b>Main activities implemented by the doctoral candidate since the delivery of the last report</b>	
<p><i>We extended the relativistic Feynman-Metropolis-Teller treatment to the case of finite temperatures. The new EOS takes into account self-consistently the relativistic, Coulomb, thermal effects and beta equilibrium in a wide range of densities relevant for both white dwarfs and neutron star crusts. The effects of the finite temperatures on the macroscopic structure of white dwarfs and neutron stars was studied. We also applied our results to low mass white dwarfs, analyzing the specific case of the WD companion of the pulsar PSR J1738+0333. The results of this part of the work are presented in two separated articles that are going to be submitted soon.</i></p> <p><i>We started the computation of the cooling of Neutron Stars in the cases of global and local charge neutrality and also for Strange Stars.</i></p>	
<b>Main activities planned to be implemented during the 12 months following the submission of this report</b>	
<ol style="list-style-type: none"> <li><i>1) To finish the computation of the cooling sequences of global and locally neutral Neutron Stars and also for Strange Stars.</i></li> <li><i>2) To compare the results with observations.</i></li> <li><i>3) To write an article with the results.</i></li> <li><i>4) To write and defend the thesis.</i></li> </ol>	

<b>Doctoral Candidate name (first name - LAST NAME)</b>	<b>Enrolment date in the Joint Programme*</b>
Christine GRUBER	September 2010
<b>Name and Institution of the Doctoral Candidate Supervisors*</b>	
Prof. Dr. Hagen KLEINERT, Free University Berlin	
<b>Title of the EMJD research project*</b>	
Quantum Phenomena in the realm of Cosmology	
<b>Short summary of the EMJD research project*</b> (the summary must include the mandatory mobility elements as well as the taught/training components and the main milestones for the doctoral candidate supervision and/or research deliverables)	
<p>13.11.-16.11.2012, International Symposium "Self Organization in Complex Systems: The Past, Present and Future of Synergetics", Hanse-Wissenschaftskolleg Delmenhorst, Germany</p> <p>04.11.-08.12.2012, Research Exchange to University of Oldenburg</p> <p>03.09.-22.09.2012, Erasmus Mundus School, Université de Nice Sophia-Antipolis, Nice, France (2 oral contributions)</p> <p>21.08.-25.08.2012, 514th WE-Heraeus Seminar "Quo vadis, BEC?", Bad Honnef, Germany (poster contribution)</p> <p>01.07.-08.07.2012, 13th Marcel Grossmann Meeting, Stockholm, Sweden (oral contribution)</p> <p>29.04.-29.07.2012, Research Exchange to ICRA Net Pescara, Italy.</p> <p>05.09.-16.09.2011, Erasmus Mundus School, Université de Nice Sophia-Antipolis, Nice, France (oral contribution)</p> <p>04.07.-08.07.2011, 17th International Symposium on Particles, Strings and Cosmology (PASCOS), Cambridge, United Kingdom</p> <p>25.05.-02.06.2011, Erasmus Mundus School, Université de Nice Sophia-Antipolis, Nice, France</p> <p>03.04.-08.04.2011, Erasmus Mundus Workshop "From Nuclei to White Dwarfs and Neutron Stars", Les Houches, France</p> <p>21.03.-25.03.2011, Erasmus Mundus Workshop / ICRA Net Scientific Faculty Meeting "Recent News from the MeV, GeV and TeV Gamma Ray Domains", , Pescara, Italy</p> <p>13.12.-15.12.2010, ICRA Net Scientific Faculty Meeting, Pescara, Italy</p> <p>06.12.-10.12.2010, 25th Texas Symposium on Relativistic Astrophysics, Heidelberg, Germany</p> <p>05.09.-01.10.2010, Erasmus Mundus School, Université de Nice Sophia-Antipolis, Nice, France</p>	
<b>Main activities implemented by the doctoral candidate since the delivery of the last report</b>	
<p>One project dealt with the dark energy (DE) problem of cosmology – i.e. the observation that the universe is expanding in an accelerated way. One possibility to explain this kinematic feature of the universe is to consider the vacuum fluctuations of quantum fields, an energy density constant in space, to cause the expansion. The vacuum energy is a divergent quantity, however, by balancing contributions of different quantum fields, a finite value can be achieved, which can correctly account for the expansion of the universe. A second project was dedicated to the occurrence of Bose-Einstein condensates (BECs) in compact objects such as neutron stars and white dwarfs. The work carried out consisted in investigation of the condensation of bosonic particles under the influence of gravitational interactions in the framework of a Hartree-Fock theory. This work is still in progress. A third project was on the subject of Cosmography - fitting supernova data in order to obtain values of the parameters of the Cosmographic Series. This work is finished and has been published in a peer-reviewed journal.</p>	
<b>Main activities planned to be implemented during the 12 months following the submission of this report</b>	
<p>The remaining time will be used to finish the calculations on the BEC project and prepare an article on the subject; an article will also be submitted on the DE project. Finally, the PhD thesis will be finished to contain all three of the above mentioned projects.</p>	

<b>Doctoral Candidate name (first name - LAST NAME)</b>	<b>Enrolment date in the Joint Programme*</b>
Vincenzo Liccardo	September 2010
<b>Name and Institution of the Doctoral Candidate Supervisors*</b>	
Prof. Filippo Frontera Università degli studi di Ferrara, Italy	
<b>Title of the EMJD research project*</b>	
Gamma-ray lens, development and test	
<b>Short summary of the EMJD research project*</b> (the summary must include the mandatory mobility elements as well as the taught/training components and the main milestones for the doctoral candidate supervision and/or research deliverables)	
<p>Today, thanks mainly to INTEGRAL and SWIFT, we have a good knowledge of the gamma-ray sky in general and about the types of objects that populate it. The next obvious step is to zoom-in, focusing on individual objects with the goal of answering specific astrophysical questions about their emission physics.</p> <p>Many astrophysical issues are expected to be solved with focusing telescopes that cover the soft gamma-ray band (beyond 80/100 keV), if they can reach a sensitivity a factor from 10 to 100 better than that of the current instrumentation (e.g., IBIS instrument aboard INTEGRAL).</p> <p>With the LAUE project, devoted to build a broad band (80-600 keV) lens telescope, we will do a significant step in this direction, thanks to the better sensitivity and high effective area which such an focusing instrument can provide.</p> <p>I'm involved in the development of the technology for building a sensitive Laue lens, including the study of the configuration and the test of the crystals employed for assembling a Laue lens petal as result of the project.</p>	
<b>Main activities implemented by the doctoral candidate since the delivery of the last report</b>	
<p>In the context of the LAUE project devoted to build a long focal-length focusing optics for soft <math>\gamma</math>-ray astronomy (80 – 600 keV), I presented the results of reflectivity measurements of bent crystals in different configurations, obtained by bending perfect or mosaic flat crystals. The measurements were performed in the LARIX facility of the University of Ferrara.</p> <p>The results are finalized to select the best materials and to optimize the thickness of the crystal tiles that will be used for building a Laue lens petal which is a part of an entire Laue lens, with 20 m focal length and 100–300 keV passband. The final goal of the LAUE project is overcome, by at least 2 orders of magnitude, the sensitivity limits of the current generation of <math>\gamma</math>-ray telescopes, and to improve the current <math>\gamma</math>-ray imaging capability.</p> <p>- <b>Characterization of bent crystals for Laue lenses</b>  <a href="#">V. Liccardo</a>, <a href="#">E. Virgilli</a>, <a href="#">F. Frontera</a>, <a href="#">V. Valsan</a></p> <p>- <b>Expected performance of a Laue lens based on bent crystals</b>  <a href="#">Vineeth Valsan</a>, <a href="#">Filippo Frontera</a>, <a href="#">Enrico Virgilli</a>, <a href="#">Vincenzo Liccardo</a></p>	

**- Development status of the LAUE project**

[F. Frontera](#), [E. Virgili](#), [V. Liccardo](#), [V. Valsan](#), [V. Carassiti](#), [S. Chiozzi](#), [F. Evangelisti](#), [S. Squerzanti](#), [M. Statera](#), [V. Guidi](#), [C. Ferrari](#), [R. A. Zappettini](#), [E. Caroli](#), [N. Auricchio](#), [S. Silvestri](#), [R. Camattari](#), [F. Cassese](#), [L. Recanatesi](#), [M. Pecora](#), [S. Mottini](#), [B. Negri](#)

*Main activities planned to be implemented during the 12 months following the submission of this report*

*Diffraction crystals have been employed for focusing photons in the 80 – 300 keV energy range in the framework of the LAUE project. For the first time, bent crystals have been used, taking advantage of their high reflectivity and excellent PSF with respect to the mosaic flat crystals. Simulations have already shown their excellent focusing capability which makes them the best candidates for a Laue lens whose sensitivity is driven by the dimension of the focused spot. Bent Germanium (perfect, 111) and Gallium Arsenide (mosaic, 220) were selected with the proper curvature to approach the spherical lens petal surface, with a 20 m long focal length. I will be involved in the measurements by which we are able to estimate the exact curvature of each tile within a few percent of uncertainty and their diffraction efficiency.*

<b><i>Doctoral Candidate name (first name - LAST NAME)</i></b>	<b><i>Enrolment date in the Joint Programme*</i></b>
<i>Parikshit DUTTA</i>	<i>6<sup>th</sup> September 2010</i>
<b><i>Name and Institution of the Doctoral Candidate Supervisors*</i></b>	
<i>Prof. Hermann Nicolai Albert Einstein Institute (Max Planck Institute for Gravitational Physics)</i>	
<b><i>Title of the EMJD research project*</i></b>	
<i>DeWitt Equation in Quantum Field Theory and its applications in investigating the structure of the effective action for N=4 Super Yang Mills Theory.</i>	
<b><i>Short summary of the EMJD research project* (the summary must include the mandatory mobility elements as well as the taught/training components and the main milestones for the doctoral candidate supervision and/or research deliverables)</i></b>	
<i>We Studied the DeWitt equation in Quantum field theory as a tool to construct the effective action for a given model in QFT in a recent work. In this work we found new insights about the general structure of the effective action, and also discussed a supersymmetric example of the solution. Regarding mobility, the candidate spent some time in France as part of mobility, also was a participant in the 13<sup>th</sup> Marcell Grossman conference in Stockholm last year.</i>	
<b><i>Main activities implemented by the doctoral candidate since the delivery of the last report</i></b>	
<i>Solution of the DeWitt equation, to get the full effective action as a series expansion in loop diagrams. Looking at the an example in this regard. Also utilize the equation to write down Schwinger Dyson equations for Liouville Field Theory. Trying to construct the effective action of N=4 Super Yang Mills Theory in Light Cone Superspace with limited success.</i>	
<b><i>Main activities planned to be implemented during the 12 months following the submission of this report</i></b>	
<i>Get insights into the structure of the correlation function of Liouville Field Theory in 2 dimensions, and also look at the source of a conjectured quantum duality. Investigating the structure of the effective action of N=4 Super Yang Mills, and if possible look at some zero dimensional applications of the technique developed thus far by the work done. Completion of Mobility period in France from April to May, is also intended.</i>	



<b>Doctoral Candidate name (first name - LAST NAME)</b>	<b>Enrolment date in the Joint Programme*</b>
Philipp FLEIG	6 <sup>th</sup> September 2010
<b>Name and Institution of the Doctoral Candidate Supervisors*</b>	
Prof. Hermann Nicolai Albert Einstein Institute (Max Planck Institute for Gravitational Physics)	
<b>Title of the EMJD research project*</b>	
Quantum Gravity and Automorphic Functions	
<b>Short summary of the EMJD research project*</b> (the summary must include the mandatory mobility elements as well as the taught/training components and the main milestones for the doctoral candidate supervision and/or research deliverables)	
<p>The project involves research in theoretical physics at the Albert-Einstein Institute (AEI) in Potsdam, Germany. The research is supervised by Prof. Hermann Nicolai as the main supervisor, as well as various other collaborations with other students and researchers in and outside of the institute. Apart from the regular ERASMUS MUNDUS schools taking place in Nice, the AEI offers regular one- or two-day seminars especially targeted towards the Ph.D. students of the institute, where a large variety of topics in theoretical high-energy physics and cosmology is discussed.</p>	
<b>Main activities implemented by the doctoral candidate since the delivery of the last report</b>	
<p>Since the last report the work on trying to understand the role of automorphic functions has been continued. In particular one of the aims is to better understand the structure of the non-constant terms in the Fourier expansion of automorphic functions. Such terms are related to non-perturbative effects of string theory. In order to make progress in this direction it proved necessary to enter into a branch of mathematics, known as Adelic theory. The tools provided by this theory allow us to get a deeper understanding of the nature of Fourier expansions of automorphic functions and in particular Eisenstein Series. Work on this has so far been a joint effort with Dr. Axel Kleinschmidt at the AEI, and Dr. Daniel Persson, a Professor at Göteborg University, Sweden and member of the local theoretical physics group. We are currently in the process of writing an extensive review article, summarising the present understanding of adelic methods as applied to automorphic functions. Further results on the non-constant terms are also work in progress.</p>	
<b>Main activities planned to be implemented during the 12 months following the submission of this report</b>	
<p>The last year of the Ph.D. will be spent with finishing the projects mentioned above. Furthermore, it is of course a prime concern to write-up the entire work of the Ph.D. in a thesis and a large part of the last half-year of the Ph.D. will be dedicated only to this.</p>	

<b><i>Doctoral Candidate name (first name - LAST NAME)</i></b>	<b><i>Enrolment date in the Joint Programme*</i></b>
Ana Virginia PENACCHIONI	01.09.2010
<b><i>Name and Institution of the Doctoral Candidate Supervisors*</i></b>	
Carlo Luciano Bianco (Universita La Sapienza)- She-Sheng Xue (ICRANet Pescara)	
<b><i>Title of the EMJD research project*</i></b>	
Spectral analysis of GRBs	
<b><i>Short summary of the EMJD research project* (the summary must include the mandatory mobility elements as well as the taught/training components and the main milestones for the doctoral candidate supervision and/or research deliverables)</i></b>	
<p>My PhD research project includes the reduction and analysis of Gamma-ray bursts (GRB) data from different satellites, such as Fermi or Swift. I interpret the results within a theoretical scenario and try to infer the properties of the progenitors. I also use different phenomenological methods to infer their redshifts making use of cosmology. Currently I am working with a sample of GRBs, analyzing their late X-ray afterglow to seek for the existence of two different classes. This will allow us to understand better the progenitor system and the underlying physics.</p>	
<b><i>Main activities implemented by the doctoral candidate since the delivery of the last report</i></b>	
<p>· <b><i>Mobility</i></b></p> <ul style="list-style-type: none"> <li>- Attendance to the “Erasmus Mundus School”, Nice, France, 6<sup>th</sup> – 24<sup>th</sup> September, 2010.</li> <li>- Attendance to the 25<sup>th</sup> Symposium of Relativistic Astrophysics “Texas 2010”, Heidelberg, Germany, December 6<sup>th</sup> -10<sup>th</sup>, 2010. Poster presentation Title: A double component in the emission of GRB 090618</li> </ul> <p>Authors: L. Izzo, R. Ruffini, A.V. Penacchioni, C.L. Bianco, L. Caito.</p> <ul style="list-style-type: none"> <li>- Attendance to the IRAP PhD. Erasmus Mundus Workshop, “Recent News from the MeV, GeV and TeV Gamma-Ray Domains”, 21<sup>st</sup> – 26<sup>th</sup> March, Pescara, Italy. Oral Presentation: The case of multiple GRBs</li> </ul> <ol style="list-style-type: none"> <li>5) - Attendance to the IRAP PhD. Erasmus Mundus Workshop, “From Nuclei to White Dwarfs and Neutron Stars”, Les Houches, France, 3<sup>rd</sup> - 8<sup>th</sup> April, 2011.</li> <li>6) - Attendance to the “Fermi Symposium”, Rome, Italy, 9<sup>th</sup>- 12<sup>th</sup> May, 2011. Poster presentation: Title: “Evidences for a double component in GRB 101023” Authors: A. V. Penacchioni, R. Ruffini, L. Izzo, M. Muccino, B. Patricelli, C.L. Bianco, L. Caito</li> </ol>	

- Attendance to the meeting “GRBs as probes: from the progenitor’s environment to the high redshift universe”, Como, Italy, 16<sup>th</sup>-20<sup>th</sup> May, 2011. Poster presentation Title: Evidences of a double component in GRB 101023 Authors: A.V. Penacchioni, R. Ruffini, L. Izzo, M. Muccino, C.L. Bianco, L. Caito, B. Patricelli
  - Attendance to the “Erasmus Mundus School”, Nice, France, 25<sup>th</sup> May – 10<sup>th</sup> June, 2011.
  - Attendance to the international meeting “High Energy Phenomena in Relativistic Outflows III” (HEPRO III). Barcelona, 27<sup>th</sup> June- 1<sup>st</sup> July, 2011. Poster presentation Title: Evidences for a double component in GRB 101023 Authors: A. V. Penacchioni; R. Ruffini; L. Izzo; C. L. Bianco; L. Caito; M. Muccino; B. Patricelli
  - Attendance to the “Erasmus Mundus School”, Nice, France, 5<sup>th</sup> - 13th September, 2011.
  - Attendance to the “Second Ferrara Workshop on X-Ray astrophysics up to 511keV”, Ferrara, Italy, 14<sup>th</sup>-16<sup>th</sup> September, 2011.
  - Attendance to the “IRAP PhD. “Erasmus Mundus Workshop”, Les Houches, France, 2<sup>nd</sup>- 6<sup>th</sup> October, 2011.
  - Attendance to the “Third Galileo-Xu Guangqi” meeting, Beijing, China, 11<sup>th</sup>- 15-th October, 2011. Oral presentation: evidences for a double component in GRB 101023.
  - Attendance to the “Fermi/Swift GRB 2012 Conference”, Munich, Germany, 7<sup>th</sup> – 11<sup>th</sup> May, 2012. Poster presentation:  
 Title: The proto-black hole concept in GRB 101023 and its possible extension to GRB 110709B. Authors: A.V. Penacchioni, R. Ruffini, C.L. Bianco, L. Izzo, M. Muccino, G.B. Pisani Erasmus Mundus Joint Doctorate IRAP PhD. Student, Dip. di Fisica, Sapienza Università di Roma.
  - Title: “Needs for a new GRB classification following the fireshell model: "genuine short", "disguised short" and "long" GRBs” Authors: C.L. Bianco, M.G. Bernardini, L. Caito, G. De Barros, L. Izzo, M. Muccino, B. Patricelli, A.V. Penacchioni, G. B. Pisani, R. Ruffini
  - Attendance to the “Marcel Grossmann” meeting, Stockholm, 1<sup>st</sup> - 7<sup>th</sup> July, 2012. Oral presentation: GRB 111228 and its SN association.
  - Attendance to the “Erasmus Mundus School”, Nice, France, 3<sup>rd</sup> – 19<sup>th</sup> September, 2012.
  - Attendance to the III National Congress “Lampi su Napoli”, Naples, 20<sup>th</sup> -22<sup>nd</sup> September, 2012.
- Oral presentation: GRB 110709B, a new member of the proto-black hole family.

- Attendance to the symposium “The Current Issues on Relativistic Astrophysics”, 5<sup>th</sup>- 6<sup>th</sup> October, 2012, Seoul, South Korea.

Oral presentation: On the Induced Gravitational Collapse: Current analysis and application to GRBs.

-Attendance to the 26<sup>th</sup> Texas Symposium on Relativistic Astrophysics, 15<sup>th</sup> -20<sup>th</sup> December, 2012, Sao Paulo, Brazil. Oral presentation: Recent progress o the induced gravitational collapse model

#### · **Scientific Publications**

A.V. Penacchioni, R. Ruffini, L. Izzo, M. Muccino, C.L. Bianco, L. Caito, B. Patricelli, L. Amati; “Evidence for a proto-black hole and a double astrophysical component in GRB 101023”; *Astronomy & Astrophysics*, 538, A58 (2012).

<<http://adsabs.harvard.edu/abs/2012A%26A...538A..58P>> <<http://dx.doi.org/10.1051/0004-6361/201118403>>

Izzo, L.; Ruffini, R.; Penacchioni, A. V.; Bianco, C. L.; Caito, L.; Chakrabarti, S. K.; Rueda, J. A.; Nandi, A.; Patricelli, B., “A double component in GRB 090618: a proto- black hole and a genuinely long gamma-ray burst”, 2012b, *A&A*, 543, A10

Izzo, L.; Ruffini, R.; Bianco, C. L.; Dereli, H.; Muccino, M.; Penacchioni, A. V.; Pisani, G.; Rueda, Jorge A., “On the thermal and double episode emissions in GRB 970828”, 2012a, *ApJ*, submitted (arXiv:1205.6651)

Muccino, Marco; Ruffini, Remo; Bianco, Carlo Luciano; Izzo, Luca; Penacchioni, Ana Virginia, “GRB 090227B: the missing link between the genuine short and disguised short GRBs” , 2012, *ApJ*, 763, 125M

A.V. Penacchoni, R. Ruffini, C.L. Bianco, L. Izzo, M. Muccino, G.B. Pisani, J. A. Rueda, “GRB 110709B in the induced gravitational collapse (IGC) paradigm”, 2013, *A&A*, 551, A133

G.B.Pisani, L. Izzo, R. Ruffini, C.L. Bianco, M. Muccino, A.V. Penacchoni, J. A. Rueda, Y. Wang, “On a novel distance indicator for Gamma-Ray Bursts associated with Supernovae”, 2013, submitted to *A&A Letters*.

#### · **Proceedings**

Title: “GRB 090618: a possible case of multiple GRB?” Authors: R. Ruffini, L. Izzo, A.V. Penacchioni, C.L. Bianco, L. Caito, S.K. Chakrabarti, A. Nandi "Proceedings of the 25th Texas Symposium on Relativistic Astrophysics. December 6-10, 2010. Heidelberg, Germany. Editors: Frank M. Rieger (Chair), Christopher van Eldik and Werner Hofmann. Published online at <http://pos.sissa.it/cgi-bin/reader/conf.cgi?confid=123>, id.101"

Title: “The proto-black hole concept in GRB 101023 and its possible extension to GRB 110709B”. Authors: A.V. Penacchioni, G.B. Pisani, R. Ruffini, C.L. Bianco, L. Izzo, M. Muccino Proceedings of the Gamma-Ray Bursts 2012 Conference (GRB 2012). May 7-11, 2012. Munich,

Germany. Published online at <http://pos.sissa.it/cgi-bin/reader/conf.cgi?confid=152>, id.42

Title: “Evidences for a double component in GRB 101023” Authors: A. V. Penacchioni, R. Ruffini, L. Izzo, M. Muccino, B. Patricelli, C.L. Bianco, L. Caito “2011 Fermi Symposium proceedings - eConf C110509, Roma, May. 9-12, 2012”

Title: “A double component in the prompt emission of GRB 090618” Authors: L. Izzo, R. Ruffini, A. V. Penacchioni, C.L. Bianco, M. Muccino, L. Caito, B. Patricelli, S.K. Chakrabarti, A. Nandi “2011 Fermi Symposium proceedings - eConf C110509, Roma, May. 9-12, 2012”

Title: “Needs for a new GRB classification following the fireshell model: "genuine short", "disguised short" and "long" GRBs” Authors: C.L. Bianco, M.G. Bernardini, L. Caito, G. De Barros, L. Izzo, M. Muccino, B. Patricelli, A.V. Penacchioni, G. B. Pisani, R. Ruffini

“Proceedings of the Gamma-Ray Bursts 2012 Conference (GRB 2012). May 7-11, 2012.

Munich, Germany. Published online at <http://pos.sissa.it/cgi-bin/reader/conf.cgi?confid=152>, id.43”

*Main activities planned to be implemented during the 12 months following the submission of this report*

PhD Thesis Discussion

<b><i>Doctoral Candidate name (first name - LAST NAME)</i></b>	<b><i>Enrolment date in the Joint Programme*</i></b>
Vineeth VALSAN	September 2010
<b><i>Name and Institution of the Doctoral Candidate Supervisors*</i></b>	
Prof. Filippo Frontera, University of Ferrara, Italy	
<b><i>Title of the EMJD research project*</i></b>	
<i>Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions</i>	
<b><i>Short summary of the EMJD research project* (the summary must include the mandatory mobility elements as well as the taught/training components and the main milestones for the doctoral candidate supervision and/or research deliverables)</i></b>	
<p><i>The main goal of the thesis is the study of a broad band (1-600 keV) multi-optics focusing telescope configuration for unprecedented observations of Galactic and extragalactic objects. Motivated by the astrophysical importance of extending the focusing band up to 600 keV, with the support of the Italian Space Agency, the development of a broad band (70/100 -600 keV) Laue Lens is being performed in Italy, under the scientific PI-ship of Filippo Frontera, at the Physics Department of the University of Ferrara. I am involved in this project, with the goal of developing a code that simulates a Laue lens made of curved crystals, like that foreseen to be developed. With this code we can, first, establish the best crystal and lens parameters of the lens prototype we want to build, later, we can compare the experimental results of the developed prototype with expectations.</i></p>	
<b><i>Main activities implemented by the doctoral candidate since the delivery of the last report</i></b>	
<p><i>The reflectivity of the bent crystals (Germanium (111) and Gallium Arsenide(220)) is simulated and verified experimentally. These bent crystals will be used to build the laue lens. I have also performed the simulation of the petal structure being build as part of the broad band Laue lens in the LARIX facility in department of Physics, University of Ferrara. The output efficiency (reflectivity), the sensitivity, and the PSF of the lens was also modelled. The results were presented at the SPIE Astronomical Telescopes and Instrumentation conference held in Amsterdam in July 2012.</i></p> <p><u><i>Papers Published:</i></u></p> <ol style="list-style-type: none"> <li><i>Expected performance of a Laue lens based on bent crystals Valsan, Vineeth; Frontera, Filippo; Virgilli, Enrico; Liccardo, Vincenzo Space Telescopes and Instrumentation 2012: Ultraviolet to Gamma Ray. Proceedings of the SPIE, Volume 8443, id. 844331-844331-7 (2012)</i></li> <li><i>Characterization of bent crystals for Laue lenses Liccardo, V.; Virgilli, E.; Frontera, F.; Valsan, V.</i></li> </ol>	

Space Telescopes and Instrumentation 2012: Ultraviolet to Gamma Ray. Proceedings of the SPIE, Volume 8443, id. 844332-844332-10 (2012)

### 3. Development status of the LAUE project

*Frontera, F.; Virgilli, E.; Liccardo, V.; Valsan, V.; Carassiti, V.; Chiozzi, S.; Evangelisti, F.; Squerzanti, S.; Statera, M.; Guidi, V.*

Space Telescopes and Instrumentation 2012: Ultraviolet to Gamma Ray. Proceedings of the SPIE, Volume 8443, id. 84430B-84430B-9 (2012)

#### Mobility:

- Erasmus mundus School, Nice, France: 6-30 September 2010.
- Erasmus Mundus Workshop, Les Houches, France: 3rd- 8th April, 2011.
- Erasmus Mundus School, Nice, France: 22 May - 11 June, 2011
- Erasmus Mundus School, Nice, France: 5th - 16th September, 2011.
- Erasmus Mundus School, Nice, France: 3rd – 21st September, 2012.
- European Synchrotron Radiation Facility, Grenoble, France: 15 Oct, 2012 - 30 Nov 2012

#### Foreseen Mobility:

- European Synchrotron Radiation Facility, Grenoble, France: 15 May, 2013 - 30 June 2013

#### *Main activities planned to be implemented during the 12 months following the submission of this report*

*The scientific aspects that can be explored using the Laue lens will be deeply studied. The Petal structure of the Laue lens is being built at the LARIX facility. The results of this petal structure will be compared with the simulated model, which, henceforth will be extended to the complete Laue lens. The results of these comparison and extension will be presented at the SPIE Optics and Photonics conference in SanDiago in August 2013.*

## PART C: EM MOBILITY DATABASE PRINT-OUTS

The doctorate fellowship candidates' data extracted from the "**Erasmus Mundus Mobility Database**" must contain the most up to date mobility tracks of all candidates enrolled in the edition/s of the Joint Doctorate covered by this Progress Report ("mobility" hyperlink under each individual doctoral candidate name).

In case that the project requests the payment of the further pre-financing the mobility database must include all the necessary and updated financial information concerning payments of the Doctoral Candidates. The form/s must be signed by the project co-ordinator. The financial information in the mobility database must be consistent with the information indicated in PART E of this report.

### NEW: EACEA Mobility Tool – User Manual Action 1 & 2

<http://iis-cfprod.eacea.cec.eu.int/mobility/docs/EACEA-Mobility-database-guidelines-EM.pdf>

### *Scholarship holders' data*

(output retrieved from the home page of the course edition concerned)

The screenshot shows the EACEA Mobility Tool interface in Internet Explorer. The browser address bar displays the URL: [http://iis-cfprod.eacea.cec.eu.int/mobility/cours\\_detail.cfm?crs=159252&yr=2012](http://iis-cfprod.eacea.cec.eu.int/mobility/cours_detail.cfm?crs=159252&yr=2012). The page content includes a table for Consortium partners, a section for Doctoral Candidates with links for Main List, Reserve List, Non-selected List, Drop-out List, Non-Scholarship holders, and Cancelled applications, and a table with the following data:

Category	Default quota	Specific Quota	Persons/Qta	Add to a list
Category A	5	<input type="text" value="5"/>	0 / 5	Add to selected category
Category B	3	<input type="text" value="3"/>	0 / 3	Add to selected category
Western Balkans and Turkey Window	1	<input type="text" value="1"/>	0 / 1	Add to selected category

Below the table is a 'Validate' button. At the bottom of the interface, there are four buttons: 'Lock and Submit', 'Progress report' (circled in red), 'Final report', and 'UnLock'. Two arrows point to the 'Progress report' button from below the screenshot.



To be used for the **2<sup>nd</sup> Pre-Financing request/Progress Report**

***Non scholarship holders' data***

(output retrieved from the "Non-Scholarship holders" list of the course edition concerned)

Doctoral Candidates

Main List | Reserve List | Non-selected List | Drop-out List | **Non-Scholarship holders** | Cancelled applications

Agreement Nbr	Title	Application Year
2010-0006	Algebra, Geometry and Number Theory Joint Doctorate (EMJDMOB)	2010

Category B = 1 / 200 - [Add to this category](#) (show/hide custom phase data)

Family Name	Gender	Nationality	University of origin	Resid.	Rank	View	Request EACEA	Modify	Move	Report data	Mobility	Mobility bulk	Delete	Histor
[REDACTED]	M	Italy	Universita degli studi di Padova	Italy	1	view	request	modify	move	data	mobility	<input type="checkbox"/>	delete	histor

Category A = 0 / 200 - [Add to this category](#) (show/hide custom phase data)

Export list

Category B  
 Category A

**PDF** Excel

To be used for **2<sup>nd</sup> Pre-Financing request, Progress**

**SEE MOBILITY\_CYCLE\_1.PDF**

## PART D: TEMPLATE OF THE EMPLOYMENT CONTRACT(S) USED

This template needs to be sent only once with the first progress report. If applicable, any possible changes/adaptations of it should be reported and justified in the reports following the first progress report.

SEE ANNEXE-7.PDF

## PART E: FINANCIAL DECLARATION ON THE USE OF THE EM GRANT

(To be filled in only in case that the report includes a request for further pre-financing for an ongoing specific grant agreement)

Specific Grant Agreement Number:  -

<b>A</b>	<b>Total amount of the Grant:</b>	
<b>B</b>	<b>Amount of the first pre-financing payment received</b>	
<b>C</b>	<b>Amount spent by the consortium</b>	
<b>D</b>	<b>Percentage of the 1<sup>st</sup> pre-financing used (C / B)*</b>	

\* Please note that the second pre-financing payment may only be requested if 70% or higher of the first pre-financing has been spent.

## BENEFICIARY DECLARATION

I, the undersigned, hereby irrevocably declare that:

- the information contained in this report is accurate and in accordance with the facts.
- the duly updated doctoral candidates data extracted from the "Erasmus Mundus Mobility Database" signed by the joint programme's co-ordinator includes the accurate mobility information on each doctoral candidate
- the information has been checked and approved by the partners involved.
- the amounts are accurate and reflect the true expenditures of the specific grant agreement concerned
- the duly updated doctoral candidates data extracted from the "Erasmus Mundus Mobility Database" signed by the joint programme's co-ordinator includes the accurate fellowship amounts spent on each doctoral candidate.

Signature of the beneficiary's legal representative\*:

Name and position (in capital letters):

Date:

Signature:

Le Président de l'Université  
de Nice - Sophia Antipolis



Frédérique VIDAL, 1996

*\*if the signatory is not the legal representative (as indicated to the Agency) add a valid document confirming their authorisation to sign on his/her behalf*

**Report:** Progress Report  
 Agreement number: 2010-0011  
 Project name: International Relativistic Astrophysics Doctorate Program  
 Project Edition: 2010  
 Activity code: EMJDMOB

### DOCTORAL CANDIDATES

Family Name	First Name	Gender	Nationality	Institution / University of origin	Country	Host institution/ University	Country	Mobility Start Date	Mobility End Date	Title of the research Project/Thesis	Amount received
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	06-09-2010	30-09-2010	Pair Instability Supernovae and Gamma-Ray Bursts	
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	Italy	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	01-10-2010	13-10-2010	Pair Instability Supernovae and Gamma-Ray Bursts	
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	France	UNIVERSITE D E SAVOIE - P RES "UNIVERS	France	14-10-2010	19-03-2011	Pair Instability Supernovae and Gamma-Ray Bursts	
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	Italy	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	20-03-2011	27-03-2011	Pair Instability Supernovae and Gamma-Ray Bursts	
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	France	UNIVERSITE D E SAVOIE - P RES "UNIVERS	France	28-03-2011	21-05-2011	Pair Instability Supernovae and Gamma-Ray Bursts	
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	22-05-2011	11-06-2011	Pair Instability Supernovae and Gamma-Ray Bursts	
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	France	UNIVERSITE D E SAVOIE - P RES "UNIVERS	France	12-06-2011	03-09-2011	Pair Instability Supernovae and Gamma-Ray Bursts	
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	04-09-2011	18-09-2011	Pair Instability Supernovae and Gamma-Ray Bursts	
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	France	UNIVERSITE D E SAVOIE - P RES "UNIVERS	France	19-09-2011	14-05-2012	Pair Instability Supernovae and Gamma-Ray Bursts	

### DOCTORAL CANDIDATES - CATEGORY A

Family Name	First Name	Gender	Nationality	Institution / University of origin	Country	Host institution/ University	Country	Mobility Start Date	Mobility End Date	
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	Italy	UNIVERSITA D I FERRARA	Italy	15-05-2012	15-06-2012	Pair Instability Supernovae and Gamma-Ray Bursts
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	France	UNIVERSITÉ D E SAVOIE - P RES "UNIVERS	France	16-06-2012	30-06-2012	Pair Instability Supernovae and Gamma-Ray Bursts
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	Sweden	STOCKHOLM UN IVERSTY	Sweden	01-07-2012	31-07-2012	Pair Instability Supernovae and Gamma-Ray Bursts
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	Italy	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	01-08-2012	31-08-2012	Pair Instability Supernovae and Gamma-Ray Bursts
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	01-09-2012	22-09-2012	Pair Instability Supernovae and Gamma-Ray Bursts
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	France	UNIVERSITÉ D E SAVOIE - P RES "UNIVERS	France	23-09-2012	22-10-2012	Pair Instability Supernovae and Gamma-Ray Bursts
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	Italy	UNIVERSITÀ D I FERRARA	Italy	23-10-2012	09-11-2012	Pair Instability Supernovae and Gamma-Ray Bursts
BARANOV	ANDREY	M	Russian	NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPHI	France	UNIVERSITÉ D E SAVOIE - P RES "UNIVERS	France	10-11-2012	15-03-2013	Pair Instability Supernovae and Gamma-Ray Bursts
Total for <b>BARANOV, ANDREY</b> : 17										
112300.00										
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	06-09-2010	30-09-2010	N=4 SuperSymmetric Yang Mills Theory
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	Italy	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	01-10-2010	13-10-2010	N=4 SuperSymmetric Yang Mills Theory
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	Germany	AEI - POTSDAM	Germany	14-10-2010	20-03-2011	N=4 SuperSymmetric Yang Mills Theory
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	Italy	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	21-03-2011	27-03-2011	N=4 SuperSymmetric Yang Mills Theory
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	Germany	AEI - POTSDAM	Germany	28-03-2011	02-04-2011	N=4 SuperSymmetric Yang Mills Theory
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	France	UNIVERSITÉ D E SAVOIE - P RES "UNIVERS	France	03-04-2011	09-04-2011	N=4 SuperSymmetric Yang Mills Theory
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	Germany	AEI - POTSDAM	Germany	10-04-2011	21-05-2011	N=4 SuperSymmetric Yang Mills Theory
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	22-05-2011	11-06-2011	N=4 SuperSymmetric Yang Mills Theory
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	Germany	AEI - POTSDAM	Germany	12-06-2011	03-09-2011	N=4 SuperSymmetric Yang Mills Theory
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	04-09-2011	18-09-2011	N=4 SuperSymmetric Yang Mills Theory

Family Name	First Name	Gender	Nationality	Institution / University of origin	Country	Host institution/ University	Country	Mobility Start Date	Mobility End Date
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	India	AEI - POTSDAM	Germany	19-09-2011	30-06-2012
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	India	STOCKHOLM UNIVERSITY	Sweden	01-07-2012	15-07-2012
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	India	AEI - POTSDAM	Germany	16-07-2012	31-08-2012
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	India	UNIVERSITE DE NICE - SOPHIA ANTIPOLI	France	01-09-2012	22-09-2012
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	India	AEI - POTSDAM	Germany	23-09-2012	30-03-2013
DUTTA	PARIKSHIT	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY KANPUR	India	UNIVERSITE DE SAVOIE - PRESIDENTIELLE UNIVERSITE	France	31-03-2013	31-05-2013
<b>Total for DUTTA, PARIKSHIT : 16</b>									
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	UNIVERSITE DE NICE - SOPHIA ANTIPOLI	France	15-09-2010	30-09-2010
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	INTERNATIONAL CENTER FOR RELATIVISTICAL COSMOLOGY	Italy	01-10-2010	13-10-2010
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	SAPIENZA - UNIVERSITA DI ROMA	Italy	14-10-2010	20-03-2011
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	INTERNATIONAL CENTER FOR RELATIVISTICAL COSMOLOGY	Italy	21-03-2011	27-03-2011
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	SAPIENZA - UNIVERSITA DI ROMA	Italy	28-03-2011	02-04-2011
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	UNIVERSITE DE NICE - SOPHIA ANTIPOLI	France	03-04-2011	09-04-2011
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	SAPIENZA - UNIVERSITA DI ROMA	Italy	10-04-2011	21-05-2011
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	UNIVERSITE DE NICE - SOPHIA ANTIPOLI	France	22-05-2011	11-06-2011
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	INTERNATIONAL CENTER FOR RELATIVISTICAL COSMOLOGY	Italy	12-06-2011	03-09-2011
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	UNIVERSITE DE NICE - SOPHIA ANTIPOLI	France	04-09-2011	18-09-2011
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	INTERNATIONAL CENTER FOR RELATIVISTICAL COSMOLOGY	Italy	19-09-2011	01-10-2011
MACHADO DE OLIVEIRA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS	Brazil	UNIVERSITE DE NICE - SOPHIA ANTIPOLI	France	02-10-2011	08-10-2011

112300.00

Family Name	First Name	Gender	Nationality	Institution / University of origin	Country	Host institution/ University	Country	Mobility Start Date	Mobility End Date
MACHADO DE OLIVEIRA FRAGA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS		INTERNATIONAL CENTER FOR RELATIVISTI	Italy	09-10-2011	30-06-2012
MACHADO DE OLIVEIRA FRAGA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS		STOCKHOLM UNIVERSITY	Sweden	01-07-2012	15-07-2012
MACHADO DE OLIVEIRA FRAGA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS		INTERNATIONAL CENTER FOR RELATIVISTI	Italy	16-07-2012	31-08-2012
MACHADO DE OLIVEIRA FRAGA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS		UNIVERSITE D NICE - SOPHIA ANTIPOLI	France	01-09-2012	22-09-2012
MACHADO DE OLIVEIRA FRAGA	BERNARDO	M	Brazilian	CENTRO BRASILEIRO DE PESQUISAS FISICAS		INTERNATIONAL CENTER FOR RELATIVISTI	Italy	23-09-2012	30-04-2013
<b>Total for MACHADO DE OLIVEIRA FRAGA, BERNARDO : 17</b>									
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	France	UNIVERSITE D NICE - SOPHIA ANTIPOLI	France	06-09-2010	30-09-2010
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	Italy	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	01-10-2010	13-10-2010
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	Italy	SAPIENZA - UNIVERSITA DI ROMA	Italy	14-10-2010	20-03-2011
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	Italy	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	21-03-2011	27-03-2011
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	Italy	SAPIENZA - UNIVERSITA DI ROMA	Italy	28-03-2011	02-04-2011
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	France	UNIVERSITE D E SAVOIE - PRES UNIVERS ROMA	France	03-04-2011	09-04-2011
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	Italy	SAPIENZA - UNIVERSITA DI ROMA	Italy	10-04-2011	21-05-2011
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	France	UNIVERSITE D E NICE - SOPHIA ANTIPOLI	France	22-05-2011	11-06-2011
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	Italy	SAPIENZA - UNIVERSITA DI ROMA	Italy	12-06-2011	03-09-2011
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	France	UNIVERSITE D E NICE - SOPHIA ANTIPOLI	France	04-09-2011	18-09-2011
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	Italy	SAPIENZA - UNIVERSITA DI ROMA	Italy	19-09-2011	01-10-2011
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	France	UNIVERSITE D E SAVOIE - PRES UNIVERS ROMA	France	02-10-2011	08-10-2011
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	ISTITUTO TECNOLOGICO DE AERONAUTICA	Italy	SAPIENZA - UNIVERSITA DI ROMA	Italy	09-10-2011	30-06-2012

112300.00

Family Name	First Name	Gender	Nationality	Institution / University of origin	Country	Host institution/ University	Country	Mobility Start Date	Mobility End Date
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	INSTITUTO TECNOLOGICO DE AERONAUTICA		STOCKHOLM UNIVERSITY	Sweden	01-07-2012	15-07-2012
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	INSTITUTO TECNOLOGICO DE AERONAUTICA		SAPIENZA - UNIVERSITA DI ROMA	Italy	16-07-2012	31-08-2012
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	INSTITUTO TECNOLOGICO DE AERONAUTICA		UNIVERSITE DIE NICE - SOPHIA ANTIPOLI	France	01-09-2012	22-09-2012
MARTINS DE CARVALHO	SHEYSE	F	Brazilian	INSTITUTO TECNOLOGICO DE AERONAUTICA		SAPIENZA - UNIVERSITA DI ROMA	Italy	23-09-2012	30-04-2013
<b>Total for MARTINS DE CARVALHO, SHEYSE : 17</b>									
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		UNIVERSITE DIE NICE - SOPHIA ANTIPOLI	France	06-09-2010	30-09-2010
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		INTERNATIONAL CENTER FOR RELATIVISTI	Italy	01-10-2010	13-10-2010
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		SAPIENZA - UNIVERSITA DI ROMA	Italy	14-10-2010	20-03-2011
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		INTERNATIONAL CENTER FOR RELATIVISTI	Italy	21-03-2011	27-03-2011
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		SAPIENZA - UNIVERSITA DI ROMA	Italy	28-03-2011	02-04-2011
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		UNIVERSITE DIE SAVOIE - PRES UNIVERS	France	03-04-2011	09-04-2011
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		SAPIENZA - UNIVERSITA DI ROMA	Italy	10-04-2011	21-05-2011
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		UNIVERSITE DIE NICE - SOPHIA ANTIPOLI	France	22-05-2011	11-06-2011
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		SAPIENZA - UNIVERSITA DI ROMA	Italy	12-06-2011	03-09-2011
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		UNIVERSITE DIE NICE - SOPHIA ANTIPOLI	France	04-09-2011	18-09-2011
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		SAPIENZA - UNIVERSITA DI ROMA	Italy	19-09-2011	01-10-2011
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		UNIVERSITE DIE SAVOIE - PRES UNIVERS	France	02-10-2011	08-10-2011
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		SAPIENZA - UNIVERSITA DI ROMA	Italy	09-10-2011	30-06-2012
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		STOCKHOLM UNIVERSITY	Sweden	01-07-2012	15-07-2012
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LATA		SAPIENZA - UNIVERSITA DI ROMA	Italy	16-07-2012	31-08-2012

112300.00



Family Name	First Name	Gender	Nationality	Institution / University of origin	Country	Host institution/ University	Country	Mobility Start Date	Mobility End Date	
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LA PLATA		UNIVERSITE DE NICE - SOPHIA ANTIPOLE	France	01-09-2012	22-09-2012	Multiwavelength analysis of Gamma-Ray Bursts
PENACCHIONI	ANA VIRGINIA	F	Argentinian	UNIVERSITY OF LA PLATA		SAPIENZA - UNIVERSITA DI ROMA	Italy	23-09-2012	30-04-2013	Multiwavelength analysis of Gamma-Ray Bursts
<b>Total for PENACCHIONI, ANA VIRGINIA : 17</b>										
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITE DE NICE - SOPHIA ANTIPOLE	France	06-09-2010	30-09-2010	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		INTERNATIONAL CENTER FOR RELATIVISTIC PHYSICS	Italy	01-10-2010	13-10-2010	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITA DI FERRARA	Italy	14-10-2010	20-03-2011	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		INTERNATIONAL CENTER FOR RELATIVISTIC PHYSICS	Italy	21-03-2011	27-03-2011	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITA DI FERRARA	Italy	28-03-2011	02-04-2011	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITA DI FERRARA	France	03-04-2011	09-04-2011	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITA DI FERRARA	Italy	10-04-2011	21-05-2011	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITE DE NICE - SOPHIA ANTIPOLE	France	22-05-2011	11-06-2011	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITA DI FERRARA	Italy	12-06-2011	03-09-2011	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITE DE NICE - SOPHIA ANTIPOLE	France	04-09-2011	18-09-2011	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITA DI FERRARA	Italy	19-09-2011	01-10-2011	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITE DE NICE - SAVOIE - PRES UNIVERSITAT DI FERRARA	France	02-10-2011	08-10-2011	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITA DI FERRARA	Italy	09-10-2011	30-06-2012	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		STOCKHOLM UNIVERSITY	Sweden	01-07-2012	15-07-2012	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITA DI FERRARA	Italy	16-07-2012	31-08-2012	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF TECHNOLOGY BANGALORE		UNIVERSITE DE NICE - SOPHIA ANTIPOLE	France	01-09-2012	22-09-2012	Extending the band of focusing X-ray telescopes beyond 100 keV: motivations and proposed solutions

112300.00

Family Name	First Name	Gender	Nationality	Institution / University of origin	Country	Host institution/ University	Country	Mobility Start Date	Mobility End Date	
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF ASTROPHYSICS BAN GALORE	INDIA	UNIVERSITA D I FERRARA	Italy	23-09-2012	14-10-2012	Extending the band of focusing X-ray telescopes beyond 100 keV. motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF ASTROPHYSICS BAN GALORE	INDIA	UNIVERSITÉ D E SAVOIE - P RES "UNIVERS	France	15-10-2012	30-11-2012	Extending the band of focusing X-ray telescopes beyond 100 keV. motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF ASTROPHYSICS BAN GALORE	INDIA	UNIVERSITÀ D I FERRARA	Italy	01-12-2012	14-05-2013	Extending the band of focusing X-ray telescopes beyond 100 keV. motivations and proposed solutions
VALSAN	VINEETH	M	Indian	INDIAN INSTITUTE OF ASTROPHYSICS BAN GALORE	INDIA	UNIVERSITÉ D E SAVOIE - P RES "UNIVERS	France	15-05-2013	30-06-2013	Extending the band of focusing X-ray telescopes beyond 100 keV. motivations and proposed solutions
Total for VALSAN, VINEETH : 20										112300.00

Total for **Category A**: 104 mobilities by 6 Doctoral Candidates 673800.00

### DOCTORAL CANDIDATES - CATEGORY B

ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	ITALY	UNIVERSITÉ D E NICE - SOP HIA ANTIPOLI	France	06-09-2010	30-09-2010	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	ITALY	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	01-10-2010	13-10-2010	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	ITALY	SAPIENZA - UNIVERSITÀ DI ROMA	Italy	14-10-2010	20-03-2011	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	ITALY	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	21-03-2011	27-03-2011	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	ITALY	SAPIENZA - UNIVERSITÀ DI ROMA	Italy	28-03-2011	02-04-2011	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	FRANCE	UNIVERSITÉ D E SAVOIE - P RES "UNIVERS	France	03-04-2011	09-04-2011	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	ITALY	SAPIENZA - UNIVERSITÀ DI ROMA	Italy	10-04-2011	17-04-2011	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	ITALY	SAPIENZA - UNIVERSITÀ DI ROMA	Italy	18-04-2011	21-05-2011	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	FRANCE	UNIVERSITÉ D E NICE - SOP HIA ANTIPOLI	France	22-05-2011	11-06-2011	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	ITALY	SAPIENZA - UNIVERSITÀ DI ROMA	Italy	12-06-2011	03-07-2011	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	ITALY	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	04-07-2011	09-07-2011	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	ITALY	SAPIENZA - UNIVERSITÀ DI ROMA	Italy	10-07-2011	03-09-2011	Emission from the photosphere of Gamma-Ray Bursts: kinetic approach

Family Name	First Name	Gender	Nationality	Institution / University of origin	Country	Host institution/ University	Country	Mobility Start Date	Mobility End Date
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	Italy	UNIVERSITÄT D E NICE - SOPHIA ANTIPOLE	France	04-09-2011	18-09-2011
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	Italy	SAPIENZA - UNIVERSITÀ DI ROMA	Italy	19-09-2011	01-10-2011
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	Italy	UNIVERSITÄT D E SAVOIE - PRES "UNIVERS	France	02-10-2011	08-10-2011
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	Italy	SAPIENZA - UNIVERSITÀ DI ROMA	Italy	09-10-2011	14-04-2012
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	Italy	STOCKHOLM UNIVERSITY	Sweden	15-04-2012	15-07-2012
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	Italy	SAPIENZA - UNIVERSITÀ DI ROMA	Italy	16-07-2012	31-08-2012
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	France	UNIVERSITÄT D E NICE - SOPHIA ANTIPOLE	France	01-09-2012	30-09-2012
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	Italy	SAPIENZA - UNIVERSITÀ DI ROMA	Italy	01-10-2012	31-01-2013
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	Sweden	STOCKHOLM UNIVERSITY	Sweden	01-02-2013	28-04-2013
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	Italy	SAPIENZA - UNIVERSITÀ DI ROMA	Italy	29-04-2013	30-06-2013
ALBERTO	BENEDETTI	M	Italian	UNIVERSITY OF PAVIA	France	UNIVERSITÄT D E SAVOIE - PRES "UNIVERS	France	01-07-2013	31-08-2013
<b>Total for ALBERTO, BENEDETTI : 23</b>									
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE LONDON	Germany	UNIVERSITÄT D E NICE - SOPHIA ANTIPOLE	France	06-09-2010	30-09-2010
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE LONDON	Germany	AEI - POTSDAM	Germany	01-10-2010	20-03-2011
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE LONDON	Italy	INTERNATIONAL CENTER FOR RELATIVIST	Italy	21-03-2011	27-03-2011
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE LONDON	Germany	AEI - POTSDAM	Germany	28-03-2011	21-05-2011
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE LONDON	France	UNIVERSITÄT D E NICE - SOPHIA ANTIPOLE	France	22-05-2011	11-06-2011
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE LONDON	Germany	AEI - POTSDAM	Germany	12-06-2011	03-09-2011
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE LONDON	France	UNIVERSITÄT D E NICE - SOPHIA ANTIPOLE	France	04-09-2011	23-09-2011
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE LONDON	Germany	AEI - POTSDAM	Germany	24-09-2011	14-05-2012
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE LONDON	France	UNIVERSITÄT D E SAVOIE - PRES "UNIVERS	France	15-05-2012	15-06-2012
									107800.00

Family Name	First Name	Gender	Nationality	Institution / University of origin	Country	Host institution/ University	Country	Mobility Start Date	Mobility End Date
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE L OONDON	Germany	AEI - POTSDA M	Germany	16-06-2012	11-09-2012
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE L OONDON	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	12-09-2012	15-09-2012
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE L OONDON	Germany	AEI - POTSDA M	Germany	16-09-2012	02-03-2013
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE L OONDON	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	03-03-2013	28-03-2013
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE L OONDON	Germany	AEI - POTSDA M	Germany	29-03-2013	30-04-2013
FLEIG	PHILIPP	M	German	IMPERIAL COLLEGE L OONDON	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	01-05-2013	31-05-2013
Total for <b>FLEIG, PHILIPP</b> : 15 <span style="float: right;">107800.00</span>									
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	06-09-2010	30-09-2010
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Germany	FREIE UNIVERSITÄT BERLIN	Germany	01-10-2010	20-03-2011
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Italy	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	21-03-2011	27-03-2011
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Germany	FREIE UNIVERSITÄT BERLIN	Germany	28-03-2011	02-04-2011
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	France	UNIVERSITÉ D E SAVOIE - PRES "UNIVERS	France	03-04-2011	09-04-2011
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Germany	FREIE UNIVERSITÄT BERLIN	Germany	10-04-2011	21-05-2011
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	22-05-2011	11-06-2011
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Germany	FREIE UNIVERSITÄT BERLIN	Germany	12-06-2011	03-09-2011
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	04-09-2011	18-09-2011
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Germany	FREIE UNIVERSITÄT BERLIN	Germany	19-09-2011	28-04-2012
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Italy	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	29-04-2012	30-06-2012
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Sweden	STOCKHOLM UNIVERSITY	Sweden	01-07-2012	15-07-2012
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Italy	INTERNATIONAL CENTER FOR RELATIVISTI	Italy	16-07-2012	29-07-2012
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Germany	FREIE UNIVERSITÄT BERLIN	Germany	30-07-2012	31-08-2012
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	France	UNIVERSITE D E NICE - SOP HIA ANTIPOLI	France	01-09-2012	22-09-2012

Family Name	First Name	Gender	Nationality	Institution / University of origin	Country	Host institution/ University	Country	Mobility Start Date	Mobility End Date
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Germany	FREIE UNIVERSITÄT BERLIN	Germany	23-09-2012	30-04-2013
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Italy	INTERNATIONALES ZENTRUM FÜR RELATIVISTISCHES KOSMOLOGISCHES PHÄNOMENE	Italy	01-05-2013	31-07-2013
GRUBER	CHRISTINE	F	Australian	J. KEPLER UNIVERSITÄT LINZ	Germany	FREIE UNIVERSITÄT BERLIN	Germany	01-08-2013	31-08-2013
<b>Total for GRUBER, CHRISTINE : 18</b>									
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	France	UNIVERSITÉ D'ORLÈANS	France	06-09-2010	30-09-2010
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	Italy	INTERNATIONAL CENTER FOR RELATIVISTIC COSMOLOGY	Italy	01-10-2010	13-10-2010
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	Italy	UNIVERSITÀ DI FERRARA	Italy	14-10-2010	20-03-2011
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	Italy	INTERNATIONAL CENTER FOR RELATIVISTIC COSMOLOGY	Italy	21-03-2011	27-03-2011
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	Italy	UNIVERSITÀ DI FERRARA	Italy	28-03-2011	02-04-2011
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	France	UNIVERSITÉ D'ORLÈANS	France	03-04-2011	09-04-2011
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	Italy	RES "UNIVERSITÀ DI FERRARA"	Italy	10-04-2011	21-05-2011
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	France	UNIVERSITÉ D'ORLÈANS	France	22-05-2011	11-06-2011
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	Italy	UNIVERSITÀ DI FERRARA	Italy	12-06-2011	03-09-2011
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	France	UNIVERSITÉ D'ORLÈANS	France	04-09-2011	18-09-2011
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	Italy	UNIVERSITÀ DI FERRARA	Italy	19-09-2011	31-05-2012
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	France	UNIVERSITÉ D'ORLÈANS	France	01-06-2012	30-06-2012
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	Sweden	STOCKHOLM UNIVERSITY	Sweden	01-07-2012	31-08-2012
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	France	UNIVERSITÉ D'ORLÈANS	France	01-09-2012	22-09-2012
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	Italy	UNIVERSITÀ DI FERRARA	Italy	23-09-2012	14-10-2012
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	France	UNIVERSITÉ D'ORLÈANS	France	15-10-2012	15-12-2012
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	Italy	RES "UNIVERSITÀ DI FERRARA"	Italy	16-12-2012	14-04-2013
LICCARDO	VINCENZO	M	Italian	UNIVERSITY FEDERICO II NAPOLI	Sweden	STOCKHOLM UNIVERSITY	Sweden	15-04-2013	15-07-2013
<b>Total for LICCARDI, VINCENZO : 18</b>									

107800.00

107800.00

Family Name	First Name	Gender	Nationality	Institution / University of origin	Country	Host institution/ University	Country	Mobility Start Date	Mobility End Date
<b>Total for Category B: 74 mobilities by 4 Doctoral Candidates</b>									
<b>Total of 178 mobilities by 10 Doctoral Candidates</b>									
<b>Global Total: 178 mobilities for 10 persons</b>									

431200.00

1105000.00

1105000.00

Date (day/month/year):

15/03/2013

Name of the coordinator: Mr Pascal CHARDONNET

Signature:



Stamp of the co-ordinating institution: