

Call for n. 10 INdAM-DP-COFUND-2015  
“INdAM Doctoral Programme  
in Mathematics and/or Applications  
Cofunded by Marie Skłodowska-Curie Actions”  
Funding “Dottorato di Ricerca” Programmes  
in Italy

**NEW DEADLINE: 30 June 2018, Rome local time**

### **Disclaimer**

**This English language translation does not have legal value in itself, and thus does not supersede the Italian version of the Call Announcement (“Bando”).**

## **1 INdAM-DP-COFUND-2015 Fellowships**

The Istituto Nazionale di Alta Matematica “Francesco Severi” (INdAM), within the European project INdAM-DP-COFUND-2015, gives notice of a call for n. 10 PhD fellowships, of *Incoming* type, funding “Dottorato di Ricerca” programmes in Italy.

Fellowships are offered under the terms of Law No. 240 of 30 December 2010, article 22, comma 1; the duration of each fellowship is 36 months.

In the application form, the candidate must choose, from the list in Allegato 1, the Doctorate programme where the fellowship will be spent.

If the chosen Doctorate programme is deactivated or changes its structure, then the candidate will be allowed to choose another Doctorate. The President of INdAM will issue a decree giving that candidate the possibility to resubmit the proposal, amended with the necessary changes, within a separate deadline.

From the start of the fellowship, the successful candidate is given the title of “Marie Skłodowska-Curie fellow of the Istituto Nazionale di Alta Matematica”. In her/his scientific publications related to the research activity carried out while the fellowship is being awarded, the fellow must be mentioned as “Marie Skłodowska-Curie fellow of the Istituto Nazionale di Alta Matematica”.

### **1.1 Additional fellowship**

If the percentage of successful candidates of the gender with fewer candidates is less than two thirds of the ratio between the number of candidates of that gender who passed the threshold and the number of all candidates passing the threshold, then one additional fellowship, entirely funded by INdAM, will be awarded to the best ranked candidate of that gender among those who passed threshold and were not awarded a fellowship. For the computation of the above percentage, withdrawals of successful applicants are not taken into account.

## **2 Eligibility conditions**

## **2.1 General conditions**

Applicants must be nationals of either an EU Member State (MS) different from Italy, or of an Associated Country (AC), or of a Third Country.

Applicants must not have resided or carried out their main activity (work, studies, etc.) in Italy for more than 12 months in the 3 years immediately prior to the deadline for the submission of proposals. Short stays such as holidays are not taken into account.

For the purpose of the programme, Italian nationals having legally resided or having carried out their main activity (work, studies, etc.) outside Italy for at least three of the four years immediately prior to the deadline for the submission of proposals, are treated as Italian non-nationals (concept of *assimilated nationality*). Short stays such as holidays are not taken into account.

On the date of the deadline for submission of proposals, applicants must satisfy the following conditions:

1. not having carried out more than four years of full-time equivalent research experience, including the period of research training, after obtaining the degree/diploma which formally allows them to embark on a Doctorate either in Italy or in the country in which the degree/diploma was obtained;
2. not being in possession of a Doctoral degree.

Moreover:

3. on the date of the deadline for submitting the transcript of the degree/diploma which formally allows them to embark on the chosen Doctorate in Italy, as specified in Article 4, the candidate must be in possession of that degree/diploma.

Candidates who, on the deadline for the submission of proposals, are holding a position as researchers (“ricercatori”), associate or full professors in an Italian university, or as researchers in a State research institutions, or are permanently employed as professors in a foreign university (“tenured positions”), or have been awarded research fellowships under the terms of Law No. 240 of 30 December 2010, article 22, comma 1 for more than three years in total, will be excluded from the selection process.

Furthermore, all applicants that on the deadline for the submission of proposals are enrolled in Ph.D. Program in Italy will also be excluded from the selection process.

## **2.2 Degree/Diploma Verification**

The validity of the degree/diploma which formally allows the applicant to embark on the chosen Doctorate in Italy is established by the University hosting the administrative offices for that Doctorate, in accordance with the prevailing legislation in Italy and in the country where the degree was issued and with any international treaties or agreements for the recognition of degrees for the continuation of studies, and to the internal regulations of that University.

For the purposes of the verification described in the previous paragraph, and under penalty of forfeiture of the fellowship, successful applicants must provide all the required documentation within the relevant deadlines, as specified by the administrative offices of the chosen Doctorate.

The outcome of the procedure establishing the validity of the degree/diploma is not subject to the Redress procedure described in Article 5 of this Call.

## **3 Amount of the Fellowship**

The total amount of the fellowship is equal to the sum of the following components:

- a *Living Allowance*, which will be paid directly to the fellow.  
The Living Allowance amounts to:
  - € 2000/month, for researchers without family;
  - € 2200/month, for researchers with family.

Here we refer to the definition of “family” as in the Work Programme 2014-15 of Horizon 2020: “Family is defined as persons linked to the researcher by (i) marriage, or (ii) a relationship with equivalent status to a marriage recognised by the national legislation of Italy or by the legislation of the country where this relationship was formalised; or (iii) dependent children who are actually being maintained by the researcher.”

- a *Mobility Allowance*, which will be paid directly to the fellow.  
The Mobility Allowance amounts to € 600/month.
- a *Travel Allowance*, which will be paid to the fellow to cover travel expenses between the location of origin of the researcher and the partner institution, up to a maximum of € 1000 for each journey.  
Each fellow is entitled to six journeys, two for each year.
- a *Research Cost Contribution (RCC)*, to be paid by INdAM directly to the fellow as reimbursement of expenses for the direct purchase of any material (excluding hardware) or consumable goods needed for her/his research, and of travel and living expenses for participation to scientific events.  
The RCC contribution amounts to € 1600 for the first year, to € 3200 for the second year and to € 3200 for the third year.
- an amount of € 500/month plus VAT, to be paid by INdAM directly to an organisation (an Enterprise or a host Institution), for a maximum of four months, in case the activities planned for the Doctoral programme include a stage at that organisation.

Tuition fees related to the enrollment and the attendance of the chosen PhD Programme will be payed directly by the fellow and will be reimbursed to him/her by INdAM.

The fellowship will be paid in monthly instalments after each completed month. Reimbursement of expenses will be admitted for scientific engagements within the field of activities of the “Gruppi Nazionali di Ricerca Matematica”.

Additionally and notwithstanding the above conditions, membership of the “Gruppi Nazionali di Ricerca” is guaranteed, even in derogation of the current terms.

The fellowships are not compatible with any other salary or income of any form. Moreover they are not compatible with the position of full professor, associate professor or researcher at Italian universities, researcher in public research institutions, professor or researcher of universities or with permanent positions as researcher in foreign public research institutes (“tenured positions”)

Fellowship holders may not under any circumstances receive income or expenses from the Institute other than what prescribed by Allegato 2 and by the regulations of the chosen Doctorate.

#### **4 How to apply**

Applications should be submitted before 5pm on 30 June 2018, Rome local time, by completing an electronic application form which can be found on the INdAM website <http://cofund.altamatematica.it>

For the application to be valid, the candidate must complete all the required sections of the

application form, as well as upload all the required documents, with the only possible exception of the official transcript of the degree/diploma which formally allows the applicant to enroll in the chosen Doctorate,

This transcript of the degree/diploma must be submitted with an electronic application form on the INdAM website <http://cofund.altamatematica.it>

for EU Citizens: before 5pm on 30 September 2018, Rome local time;

for non-EU Citizens: before 5pm on 30 June 2018, Rome local time;

for this purpose, candidates will be allowed to partially reopen their submitted application, limited to the transmission of the aforementioned transcript.

Each application must include:

- A Curriculum Vitae of the applicant
- One copy of all the official transcripts (in English or Italian) detailing the university-level qualifications, the list of classes-exams attended/passed and marks to date, the final score and the date of graduation and the official duration of the study programme.
- Two academic references written by university professors supporting the applicant's intellectual ability, academic achievement, motivation, and ability to work in a group; these letters will be submitted directly by the authors using a dedicated online procedure.
- A training and research project prepared by the candidate. The project aims get to know the candidate's research interests and their consistency with the training and research themes offered by the chosen doctorate. The candidate, if successful, will remain free to choose his doctoral path and his doctoral thesis regardless of the project presented.
- One copy of the official transcript of a diploma/degree which formally entitles the applicant to enroll in the chosen Doctorate programme.

Furthermore the applicant may include

- A list of any related research paper or other significant work by the applicant

If any of the above items is missing from the application that candidate will be removed from the selection process.

All documents must be written in either Italian or English. If written in an other language they must be accompanied by a translation into Italian or English, cured by, and under the responsibility of, the applicant.

INdAM may ask successful applicants to provide the original version of any document.

## **5 Selection process**

The selection process is described in Allegato 2.

A redress procedure is available. The redress procedure is concerned with the eligibility-checking process (with the exception of the eligibility check of the possession of the degree/diploma which formally entitles to embark in the chosen Doctorate) and how the referees handled the proposal; it is not an automatic re-evaluation, and the judgement of appropriately qualified experts is not called into question. The part of the evaluation procedure carried out by the Panel is not subject to the redress procedure, and the final judgement of merit determined by the Panel is binding and non-negotiable.

Eligible candidates will be ranked in an ordered list. The successful candidates are those who are ranked within the number of fellowships offered. The fellowships which become available through withdrawal, or for other reasons, may be assigned to candidates who have been considered eligible.

## 6 Outcome

The outcome of the selection process will be communicated to the successful candidates and will also be displayed in the Institute.

Fellowships are awarded by decree of the President of the Istituto Nazionale di Alta Matematica “Francesco Severi”.

Successful candidates must write to the Istituto Nazionale di Alta Matematica “Francesco Severi” - P.le Aldo Moro, 5 (Città Universitaria) – 00185 ROMA – stating their acceptance of the scholarship under the terms proposed and the choice of the host institution(s), within 15 days of receiving notification via certified e-mail of the outcome of the selection process.

This letter should be sent by registered mail, by Certified Electronic Mail (Posta Elettronica Certificata, PEC) to the address [altamatematica@pec.it](mailto:altamatematica@pec.it), or handed over in person, obtaining a receipt of delivery. Should the Institute not receive this letter in the given period, the candidate will be deemed to have refused the scholarship.

In the aforementioned letter, successful candidates must explicitly declare that they shall not benefit, throughout the period of the scholarship, from other scholarships or similar grants; that they shall not receive other salaries or income of any kind; and that they are not excluded from the competition because of what is specified in Article 2.1 “General conditions” of this Call.

On acceptance of the award, the winners of the competition must attach the following documents to their letter of acceptance:

1. Certificate of residence, without stamp duty, or a substitute document of self certification;
2. One copy of the transcript of the degree/diploma which formally allows the applicant to embark on the chosen Doctorate, in the form required by the University hosting the administrative offices for that Doctorate;
3. for candidates which are eligible for the increased Living Allowance: certificate of marriage, or equivalent document; alternatively, a family status certificate, or equivalent document.

Successful applicants, on request by the chosen Doctorate, must also provide any document necessary for the enrolment procedure.

Self-certification (“Dichiarazione sostitutiva di certificazione”) can be used in place of such certificates in all the cases allowed by the current legislation.

## 7 Obligations of the Fellow

### 7.1 Activities

The Fellow will be enrolled as a Doctoral Student (with fellowship) in the chosen Doctorate programme without further selection procedures. For serious and justified reasons of force majeure, and upon request by the Fellow, or with her/his explicit consent, the Consiglio di Amministrazione of INdAM may authorise the enrolment of the Fellow to a Doctorate, different from the one chosen in the application, but still participating in INdAM-DP-COFUND-2015.

The Board of Professors (Collegio dei Docenti) of the PhD programme appoints a Supervisor for the fellow, ordinarily among the members of the Board itself, in order to provide academic support to the fellow. The fellow, with the assistance of the Supervisor, will outline a *Personal Career Development Plan*, as indicated in Allegato 2.

At the beginning of the first year, the fellow, with the assistance of the supervisor, will choose a PhD research Director, who will assist the fellow in outlining an Individual Research Project.

In addition to the above, the fellow:

- will start work at the Doctorate within the date indicated in the appointment letter;
- will enjoy the same rights as a funded Doctoral Student of the chosen Doctorate, with the exception of the right to a 50% increase of the amount of their fellowship during training periods in a different country;
- will fulfill all the duties and obligations to which funded Doctoral Student are bound, such as: attendance requirements, passing exams, next year admission, etc.
- will work regularly on the research project at the Doctorate, in particular regularly attending scientific events held there;
- will submit to the President of INdAM, within 13 and 25 months from the start of the fellowship, two reports on the research work performed respectively during the first and the second year of the fellowship.

The fellow, although expected to take part in some of the activities of the Istituto Nazionale di Alta Matematica, will be able to pursue their research work without fixed working hours and mainly on the premises of the cofinancing centre.

## **7.2 Missions**

The project must take place at the facilities of the chosen Doctorate. Missions and off-site stays should normally be foreseen in the career development plan or in the individual research project, and must be authorized in advance by the INdAM providing adequate motivations. The request must be considered authorized only after receipt of a written authorization from the President of the INDAM.

An exception to this rule concerns short-term missions (maximum 10 working days per mission) foreseen in the career development plan or in the individual research project, for which it is not necessary to request the authorization of the INDAM, provided that these missions do not cumulatively exceed 10% of the duration of the project.

All obligations regarding missions set forth by the University's administrative offices of the chosen Doctorate remain in place.

## **7.3 Interruption or suspension**

The INdAM must be informed immediately of interruptions in the stay of the research fellow at the host university. Upon request of the fellow, the fellowship may be temporary suspended in exceptional cases by the President of INdAM, after consulting the “Consiglio di Amministrazione”.

## **7.4 Open access to scientific publications**

All the scientific publications on the research activity carried out during the fellowship will comply with Open Access rules as detailed in Allegato 4.

## **7.5 Ethical principles**

When choosing the individual research project as in Allegato 2, the fellow will check that it complies with all the Ethical principles detailed in Allegato 4, and will compile an Ethical Issues form following the Horizon 2020 guidelines.

In the cases specified in Allegato 4, the project will require explicit approval from the European Union's Research Executive Agency.

## **8 Non compliance and termination**

In case of non-compliance with obligations and / or duties specified in Article 7, for which, for funded Doctoral Students, the penalty would be the forfeiture or termination of their fellowship, the President of INdAM, after consulting the “Consiglio di Amministrazione”, will decree the early termination of the fellowship.

In other cases of non compliance by the fellow, or in cases of unauthorised absence from the workplace, the President of INdAM can issue a letter of warning, possibly accompanied by an administrative sanction not greater than one month of the fellowship. If the non compliance persists after the first letter of warning, or in the event of severe non compliance, the President, after consulting the “Consiglio di Amministrazione”, can prematurely bring the fellowship to an end.

## 9 Temporary suspension for special reasons

The fellowship may be temporarily suspended, should the fellow be absent as a result of pregnancy, childbirth, illness lasting more than a month or other serious reason.

## 10 Other

Anything which is not explicitly mentioned above is disciplined by Allegato 2, Allegato 3 and Allegato 4 which are part of the current call.

# ALLEGATO 1

## List of Doctorates

University	Acronym	Doctorate
Università degli Studi dell’Aquila	UNIVAQ	PhD in “Matematica e Modelli”
Università degli Studi di Bari “Aldo Moro”	UNIBA	PhD in “Informatica e Matematica”
Alma Mater Studiorum – Università di Bologna	UNIBO	PhD in “Mathematics”
Università della Calabria	UNICAL	PhD in “Mathematics and Computer Science”
Università degli Studi di Palermo	UNIPA	PhD in “Matematica e Scienze Computazionali”
Università degli Studi di Firenze	UNIFI	PhD in “Informatica, Matematica, Statistica”
Università degli Studi di Genova	UNIGE	PhD in “Matematica e Applicazioni”
Università degli Studi dell’Insubria	UNINSUBRIA	PhD in “Computer Science and Computational Mathematics”
Politecnico di Milano	POLIMI	PhD in “Mathematical Models and Methods in Engineering”
Università degli Studi di Milano Bicocca	UNIMIB	PhD in “Matematica”
Università degli Studi di Milano	UNIMI	PhD in “Scienze Matematiche”
Università degli Studi di Modena e Reggio Emilia	UNIMORE	PhD in “Mathematics”
Università degli Studi di Napoli	UNINA	PhD in “Matematica e applicazioni”

“Federico II”		
Università degli Studi di Padova	UNIPD	Ph. D. in “Mathematical Sciences”
Università degli Studi di Pisa	UNIPI	PhD in “Matematica”
Scuola Normale Superiore di Pisa	SNS	PhD in “Matematica”
Università degli Studi “La Sapienza” di Roma	UNIROMA1	PhD in “Matematica”
Università degli Studi di Roma “Tor Vergata”	UNIROMA2	PhD in “Pure and applied Mathematics”
Università degli Studi Roma Tre	UNIROMA3	PhD in “Matematica”
Università degli Studi di Torino	UNITO	PhD in “Complex Systems in Life Sciences”
Università degli Studi di Torino	UNITO	PhD in “Pure and Applied Mathematics”
Università degli Studi di Trento	UNITN	PhD in “Matematica”
Università degli Studi di Udine	UNIUD	PhD in “Information Technology and Mathematical and Physical Science”

*This document was translated from L<sup>A</sup>T<sub>E</sub>X by H<sup>E</sup>V<sup>E</sup>A.*

## ALLEGATO 2

### 1. Evaluation

#### 1.1 Eligibility Check

The INdAM staff will check eligibility criteria for each proposal before the evaluation begins, with the exception of the possession of a degree which formally entitles applicants to embark in a Doctorate in Italy, which will be checked by the Partner Organisation of the chosen PhD programme. -

Proposals which do not fulfil eligibility criteria will not be included in the evaluation.

If the candidate proposal is non-eligible, INdAM staff will send her/him a letter informing of the rejection of the proposal and containing the reasons for the decision.

All eligible proposals will be evaluated by independent referees and by the Panel in charge of the final decision (see Paragraph 1.2 below). Evaluation criteria and procedures are described later on (see in particular Paragraph 1.3).

Soon after the completion of the evaluation by the referees, each applicant will receive a letter containing initial information on the results of the evaluation, including scores and comments from the referees.

The applicant will also be informed that a redress procedure is available.

At the end of the evaluation procedure each applicant will receive a communication containing the final ranking and the comments of the Panel in charge of the final decision.

Official letters are then sent to successful candidates, informing them of the conditions, the rules and the obligations regarding the fellowships.

#### 1.2 Organisation of selection process

**Administrative eligibility check:** INdAM administrative staff will check the completeness of the application, as well as eligibility conditions, with the exception of the possession of a degree, which formally entitles applicants to embark in a Doctorate in Italy, which will be



checked by the Board of Professors ("Collegio dei Docenti") of the chosen PhD programme. Proposals, which do not fulfil eligibility criteria, will not be included in the evaluation.

**Evaluation and Selection:** the selection committee in charge of the final decision in each call is a Panel appointed by the Board of Directors (Consiglio di Amministrazione) of INdAM, according to the following guidelines:

- ! The composition of the Panel must ensure:
  - ! A high level of expertise;
  - ! An appropriate range of competencies in Mathematics and/or its applications;
  - ! One or more experts from the private sector;
  - ! Gender balance (at least one third);
  - ! One or more non-national experts (and at least one third).
- ! Each Panel is in charge only for one call
- ! The composition of the Panel must avoid any possible conflict of interests

In constituting the Panel, the Consiglio di Amministrazione also takes account of their abilities to appreciate the industrial and/or societal dimension of the proposals. Members of the Panel must also have the appropriate language skills required for the proposals to be evaluated.

The Panel establishes a list of national and international experts (referees) sufficiently ample to cover all the fields of interest for the calls.

Referees will be selected in order to ensure at least one third of representatives per gender. In fact we will aim to reach a full fifty-fifty gender balance.

**Redress procedure:** a Redress Committee appointed by the Consiglio di Amministrazione of INdAM examines Redress requests. -

Once the applicant has received the letter containing initial information on the results of the eligibility checks, or showing the outcome of the evaluation by the referees of her/his proposal, he/she may submit a request for redress. The redress requests are examined by the Redress Committee. The committee's role is to ensure a coherent interpretation of such requests, and equal treatment of applicants.

The redress procedure is concerned with the eligibility-checking process, and how the referees handled the proposal; it is not an automatic re-evaluation, and the judgement of appropriately qualified experts is not called into question; the part of the evaluation procedure carried out by the Panel is not subject to the redress procedure, and the final judgement of merit determined by the Panel is binding and non-negotiable.

In case the Redress Committee accepts a redress request, the Consiglio di Amministrazione may dispose that the Panel enacts a new evaluation procedure for all or part of the proposal; the candidate is promptly informed of its decision.

At the end of the evaluation procedure each applicant will receive a communication containing the final ranking and the comments of the Panel in charge of the final decision.

Official letters are then sent to successful candidates, informing them of the conditions, the rules and the obligations regarding the fellowships.

### **! Selection of experts.**

The list of the referees is drawn up by the Panel to ensure:

- ! A high level of expertise
- ! An appropriate range of competencies in mathematics and/or its applications
- ! A reasonable gender balance (at least one third)
- ! A reasonable balance of national and non-national experts
- ! An adequate participation of experts from the private sector
- ! Regular rotation of experts

In constituting the lists of experts (referees), the Panel also takes account of their abilities to

appreciate the industrial and/or societal dimension of the applicant proposals.

The list of referees will cover all the research topics corresponding to the candidate proposals.

Experts will be chosen from a dedicated database, mainly implemented through INdAM lists of prominent mathematicians such as:

- ! nationals: full professors in Italian Universities and researchers in Research Organizations
- ! non nationals: visiting professors, invited lecturers, invited speakers.

Such a database is already available from the previous INdAM Programmes funded by COFUND actions.

Each Panel may at any time include in the list of referees any individual with the appropriate skills.

### **Fellows/Researchers' selection workflow and powers entrusted to the different actors.**

Two parts compose the evaluation procedure: referees score proposals in the first part and by the Panel in the second part. The final score for each proposal is computed by averaging the scores of the two parts with weights respectively equal to 70% and 30%.

In the first part of the procedure, the Panel allocates each proposal to two referees from the list, taking account of the fields of expertise of them, and avoiding conflicts of interest. The two referees will assess each proposal independently. The proposal will be evaluated against pre-determined evaluation criteria described in section 1.3 below.

In case of strongly different opinions between the two referees, the Panel can allocate the proposal to a third referee, in particular when the difference between the scores given by the two referees exceeds 30 per cent.

In order to avoid conflicts of interests, experts in the list of referees will be assigned to proposals excluding

- ! experts who are members of the partner institution chosen as a host institution in the proposals they are evaluating;
- ! experts who had relevant scientific collaborations with one of the candidates they are evaluating;
- ! experts who are research directors, administrators, managers, and/or owners, even with minority stakes, of foundations, public institutions or private companies which participate to the programme;
- ! experts having family or relative ties or connections with the candidates they are evaluating.

All the rules provided for by the Italian laws will apply.

Under the terms of the appointment letter, referees must declare beforehand any known conflicts of interest, and must immediately inform the Panel, which will take whatever action is necessary to remove any conflict.

In the second part of the evaluation, the Panel carries out a comparative evaluation of all proposals, according to the pre-determined evaluation criteria described in section 1.3 below.

The final task of the Panel is to prepare a final report, which establishes a ranked list of the proposals, which passed all evaluation thresholds. The tasks of the Panel will also include deciding a priority order for proposals with the same score.

The Panel final report should record:

- ! A list of proposals passing all thresholds, each one with the final score and the Panel priority order
- ! A list of proposals which fail one or more thresholds
- ! A list of proposals which have been found ineligible by the experts during the evaluation

- ! A summary of all deliberations of the Panel
- ! In case the percentage of successful candidates of a gender is less than one half of the percentage of the candidates of the same gender, the Panel will be asked to mention and if possible to give some explanation of such large difference in the final report.

The final judgement of merit determined by the Panel is binding and non-negotiable.

The successful candidates are those who enter within the number of offered fellowships.

In case for any reason one or more of the successful candidates withdraw, they are replaced by the candidates in a reserve list (the list of proposals having passed all thresholds), following the Panel priority order. Each call contains information about the time of validity of the reserve list.

### 1.3 Evaluation Criteria

#### ! **Criteria/sub-criteria for the selection of fellows.**

Each application must include the following:

- ! Curriculum Vitae of the applicant;
- ! a list of any related research paper or other significant work by the applicant;
- ! one copy of the official transcripts (in English or Italian) detailing the university-level qualifications, the list of classes-exams attended/passed and marks to date, the final score and the date of graduation;
- ! two academic references for the applicant supporting intellectual ability, academic achievement, motivation, and ability to work in a group.
- ! a statement indicating which PhD school, among those offered by INdAM-DP-COFUND-2015, the applicant intends to join, and a training and research project prepared by the candidate. While not binding for the future choice of the dissertation theme, the project should allow recognition of the research interests of the applicant and whether they are coherent with the scientific research lines and the training offered by the chosen doctoral school.

The evaluation procedure is composed by two parts.

In the first part, each proposal will be assessed independently by two referees, chosen by the Panel from the list of referees taking part in this evaluation. This part may be carried out on the premises of the experts concerned ("remotely"). The Panel on the evaluation procedure will brief referees on the responsibilities of the experts, and on any other relevant topic. Referees will evaluate proposals according to the pre-determined evaluation criteria detailed below. They perform evaluations on a personal basis, not as representatives of their employer, their country or any other entity. Referees are expected to be independent, impartial and objective, and to behave throughout in a professional manner. They sign a confidentiality and conflict of interest declaration before beginning their work. Confidentiality rules must be adhered to at all time, before, during and after the evaluation. Under no circumstance may an expert attempt to contact an applicant on his own account, either during the evaluation or afterwards.

Referees are acting individually; they do not discuss the proposal with each other, nor with any third party. Referees record their individual opinions giving scores and also comments against the evaluation criteria.

When scoring proposals, referees will *only* apply the aforementioned evaluation criteria. Referees will assess and mark the proposal exactly as it is described and presented. They do not make any assumptions or interpretations about the project in addition to what is in the proposal. Concise but explicit justifications will be given for each score. Referees will also comment on strengths and weaknesses of the proposal under examination.

In the second part of the evaluation procedure, the Panel carries out a comparative evaluation of all proposals. Each proposal will be evaluated according to the pre-determined evaluation criteria for the Panel mentioned below.

## **Criteria and subcriteria for the DP fellowships**

### **Criteria for the Referees (weight: 70%)**

- ! Match between the fellow's profile and the domain of Mathematics and/or its applications in which the fellow plans to work, as inferred from the training and research project (weight: 30 %);
- ! Scientific and teaching quality of university/ties attended by the applicants to obtain its academic titles (undergraduation, graduation, Master of Sciences...) (weight: 25 %);
- ! Results including research and other significant work, fellowships and awards obtained, etc. taking into account the level of experience (weight: 20 %);
- ! Scores of university-level classes/exams passed; score of graduation and other academic titles (weight: 25 %).

### **Criteria for the Panel (weight: 30%)**

The Panel will score each proposal on the basis of the CV and of the two academic references, according to the following criteria:

- ! Match between the fellow's training and research project and the scientific and training objectives of the chosen PhD Programme (weight: 50 %);
- ! Intellectual ability, academic achievement, motivation, ability to work in a group (weight: 40 %);
- ! Potential for creating long term collaborations and mutually beneficial co-operation between Italy and the country of origin (weight: 10 %);

### **Scores and thresholds**

Each criterion will be scored out of 5. Scores will be awarded with a resolution of one decimal place.

The scores indicate the following with respect to the criterion under examination:

*0 – The proposal fails to address the criterion under examination or cannot be judged due to missing or incomplete information*

*1 – Very poor. The criterion is addressed in a cursory and unsatisfactory manner.*

*2 – Poor. There are serious inherent weaknesses in relation to the criterion in question.*

*3 – Fair. While the proposal broadly addresses the criterion, there are significant weaknesses that would need correcting.*

*4 – Good. The proposal addresses the criterion well, although certain improvements are possible.*

*5 – Excellent. The proposal successfully addresses all relevant aspects of the criterion in question. Any shortcomings are minor.*

In order to consider the merit of reentries in the scientific activity after career breaks, including parental leave, the overall scores of candidates who document career breaks in their curricula will be increased by 1% per each year of career break (and proportionally for fraction of year) up to 4 years (i.e. 4 % maximum increase of score).

An overall threshold of 70% will be applied to the total weighted score.

## **2. Research options offered by the programme**

### **2.1 Research options in terms of the triple "i" dimension (inter- national mobility, inter- sectoral exposure, and inter-disciplinarity).**

#### **International mobility**

Mathematics is a global enterprise: research results are published in peer-reviewed journals which have international boards of editors; they are presented at international conferences or

posted informally on the World Wide Web and made accessible to the community at large; international collaborations are the rule among leading researchers. It is therefore very important that a mathematical researcher acquires this *modus operandi* from the very beginning of her/his scientific training.

All the fellowships delivered by the INdAM-DP-COFUND-2015 Programme are of type Incoming; hence full mobility of the fellow is required, from the country of origin to Italy. This requirement will contribute to the creation of international collaborations from the early career stage, both for the fellows and for their Italian colleagues. Nevertheless, in order to fully exploit the transnational potential of the programme, fellows will be encouraged to spend part of their fellowship in the foreign prestigious Universities and Institutes collaborating with the PhD Schools involved in the programme. The fellow's *individual research project* (see par. 3.1) will necessarily include such stays, and the Research Cost Contribution (RCC) will help fellows with travel and lodging expenses.

### **Intersectoral exposure**

- Fellows are encouraged, in their personalized career development plan (see paragraph 3.1), to spend some period at the premises of a non-academic organisation, especially industries, to carry out there some research activity related to their PhD thesis, to deepen the applicative aspects of their studies, to acquire specific sets of skills, or to improve their career perspectives. The Programme provides incentives for a non-academic organisation, which will be paid a fee of 500 EUR/month, up to 4 months, during the secondment period at its premises. -

For each interested fellow, an agreement between INdAM and the non-academic organization will be signed, in order to ensure appropriate conditions such as: office space; access to equipment, materials and consumables; laboratory facilities; access to libraries, and the appointment of a Tutor from the organization for the secondment period.

In addition to cross-sectoral elements provided by the Doctoral schools, the INdAM programme "Visiting professors for the PhD" will appoint each year, among the Visiting Professors, some experts or researchers from the industry or other non-academic sector, in order to deliver courses on technological transfer, entrepreneurship, exploitation of research results, patenting, etc. Each course will take place at one of the partner organizations, but all the fellows will be allowed to attend, either by reimbursement of travel and stay expenses or by internet connection. The personalized career development plan (see paragraph 3.1) must include the participation of each fellow to some of such courses.

For the above reasons, participating non-academic organisations are likely to view the INdAM-COFUND-DP-2015 programme as an important opportunity for the recruitment of highly valuable employees, as well as an important channel to strengthen their links with the academic sector.

Training in non-scientific skills will be offered to the fellow by the chosen PhD School and directly by INdAM, as mentioned in the following paragraph 3.1.

### **Interdisciplinarity**

The Programme is open to every aspect of training and research in all fields of Mathematics, including the most applied and interdisciplinary aspects in natural and social sciences, e.g. Physics, Biology, Chemistry, Finance and Economics, applications to Computer Science, to Engineering, to Industry and Technology.

The personalized career development plan (see paragraph 3.1) must include the participation of each fellow in at least two courses in the above disciplines.

Finally, some scientific activities oriented to acquiring applicational abilities in different domains and disciplines will be offered to the fellow directly by INdAM, as mentioned in the following paragraph 3.1.

### 3. Career guidance and training

#### 3.1 Supervision arrangements

##### ! Specific mentoring or support schemes in place to support career development.

Successful candidates are embarked in the chosen PhD programme at one of the partner organizations (**the Host**). The Board of Professors (Collegio dei Docenti) of the PhD programme appoints a *Supervisor* for the fellow, ordinarily among the members of the Board itself, in order to provide academic support to the fellow. The fellow, with the assistance of the Supervisor, will outline a *Personal Career development plan* (hereafter: career plan) including:

- A list of courses (especially during the first year), seminars, workshops, conferences, and other scientific activities and events organized inside the PhD programme to be attended.
- Intersectoral activities, e.g. the opportunity of spending some period at the premises of one of the non academic participants to the Programme, to carry out there some research activity related to their PhD thesis, deepen the applicative aspects of their studies, acquire specific sets of skills, improve the career perspectives, participate to courses given by experts or researchers from the industry or other non-academic sector (INdAM Programme “Visiting professors for the PhD”).
- Interdisciplinary activities and training; e.g.the participation of each fellow to courses in other disciplines than mathematics (e.g. Physics, Biology, Chemistry, Finance and Economics, applications to Computer Science, to Engineering, to Industry and Technology).
- Additional scientific training, both at the Host and at INdAM premises;
- Training in non-scientific skills;
- Potential of acquiring competencies during the fellowship to improve the prospects of reaching and/or reinforcing a position of professional maturity, diversity and independence, in particular through exposure to complementary skills training.
- The opportunity of spending part of their fellowship in the foreign prestigious Universities and Institutes collaborating with the PhD Schools involved in the programme.

At the beginning of the first year, the fellow, with the assistance of the supervisor, will choose a PhD *research Director*, who will assist the fellow in outlining an *individual research project*, which eventually will give rise to a PhD thesis. The research project will include research stays in foreign Universities and Institutes collaborating with the PhD Schools involved in the programme, and will desirably include activities to be performed at the premises of a non-academic organization, which cooperates to INdAM-DP-COFUND-2015 Programme.

The fellow, in addition to the research activity, will take part in seminars, conferences, schools, workshops, including activities oriented to the acquisition of complementary skills, at the Host premises.

The Host will provide appropriate research training for each fellow, according to the training objectives (“obiettivi formativi”) provided for by the PhD Programme, as listed in the dedicated website of the Ministero dell'Istruzione Università e Ricerca, and will ensure that each fellow is given appropriate working conditions, such as: office/lab space, access to equipment, material and consumables, laboratory facilities (in particular for scientific computing), access to libraries, access to seminars, conferences, workshops and other scientific activities and events organized inside the PhD programme.

Moreover, INdAM will offer fellows membership of National Research Groups, ensuring access to facilities offered by INdAM Research Units located at Italian Universities.

Fellows participating in activities organized by INdAM or any of the INdAM National groups may get further support for travel. Fellows are invited to join the INdAM National groups also to be able to apply for this support. However, these additional research

contributions are not guaranteed, because applications by fellows, as for any other member, will need approval by the Scientific Council of the Group.

In order to further help the fellows in deepening their skills within their discipline, to gain new skills in other disciplines and in acquiring non-scientific skills, INdAM will offer each fellow a mentoring-training scheme tailored on her/his needs. The scheme will consist of three types of activities:

- 1) Scientific activities related to the fellow research program;
- 2) Scientific activities oriented to the acquisition of applicational abilities in different domains and disciplines;
- 3) Training in non-scientific skills.

1) Scientific activities related to the fellow research program.

These activities will mainly take place at the partner institution, where the career plan of the fellow is carried out. The partner institution commits itself to providing access to seminars, conferences, workshops and other scientific activities and events taking related to its PhD Programme. In addition, INdAM will offer to the fellows a large choice of Meetings, seminars, courses, schools, intensive periods either directly organized by the Institute or by other Institutions under special agreements. These events are listed below as “INdAM meetings”, “INdAM workshops”, “INdAM intensive periods”, etc.

The research cost contribution RCC that INdAM will pay directly to the fellow can be used to support their participation to those events. Participation to events 2) d) and 2) h) listed below, as well as participation to one event among 2) a) and 2) b) on the second and third year of the fellowship, will be directly supported by INdAM on its own budget.

2) Scientific activities oriented to the acquisition of applicational abilities in different domains and disciplines.

a) Participation in some “INdAM Meetings”. Fellows will be invited to take part in at least two Meetings (one per year).

(“INdAM Meetings” are periods of one week of study and research on a specific topic with the participation of about twenty invited researchers, at least 10 of them from abroad. The Proceedings are published in issues of the “SPRINGER-INdAM Series”, a book series published by Springer under the supervision of INdAM).

b) Participation in some “INdAM Workshops”. Fellows will be invited to take part at least at one workshop.

(Each workshop is organized by two directors and consists of lectures and short lecture series on themes and topics, which focus on fast developing and newly emerged areas. The duration is 4 to 5 days and involves 20 to 25 invited participants, either established specialists or promising young researchers; the Proceedings are published in issues of the “SPRINGER-INdAM Series”).

c) Participation to some of the activities of “INdAM intensive periods”.

(They are scientific activities such as schools, seminars, Conferences, collaborations, round tables, open discussions... on themes having substantial and significant mathematical content and being likely to contribute to the advancement of the mathematical sciences. They bring together mathematicians and scientists of international standing, with an appropriate balance of age and gender; they are focused with clearly defined aims and objectives and are of a size, type and duration (two to three months) suitable to the stated aims and objectives).

d) Participation to one of the annual meeting organized by the Equal Opportunity Committee of the programme at INdAM premises (directly supported by INdAM).

e) Participation to the scientific activities of INdAM National Research Groups. Among the activities are schools, conferences, seminars.

f) Participation to the scientific activities of INdAM Research Units located at the Italian Universities. Among the activities are courses, conferences, seminars.

g) Participation to the scientific activities of some Research organizations related to and partially supported by INdAM: CIME (Centro Italiano Matematico Estivo) Firenze, CIRM (Centro Internazionale per la Ricerca Matematica) Trento, Centro De Giorgi Pisa.

h) Participation to the “Giornata INdAM” (INdAM Day) which plays an important role to outline the recent developments and prospects in Mathematics. (The “Giornata INdAM” takes place every year in a different Italian university, with the purpose of illustrating to a general mathematical audience recent advances in mathematics).

3) Training in non-scientific skills.

INdAM will organize year by year some activities (courses and schools) especially intended for the fellows. The activities will take place at INdAM premises, or at INdAM research Units. -

### **3.2 Training**

#### **! Training on skills within the chosen discipline and/or to gain new skills.**

Although in Mathematics results of research are generally achieved by small groups or very often by a single researcher, it is vital to build networks of experts of the same area and of related fields because of the intertwining nature of the subject. Especially in contemporary research, the development of mathematics is based on contamination of many techniques and problematics. Because of this feature, from an early stage of training as a researcher it is fundamentally important to develop contacts with colleagues and senior mathematicians. Creating occasions for mobility and offering chances to focus on research is therefore crucial in the careers of mathematicians. The scale of the programme is particularly important as it guarantees the correct international framework.

Furthermore the programme is open to every aspect of current research including the most applied and interdisciplinary aspects of Mathematics. Every possible interconnection of the research with private sector needs will be kept in the highest regard, taking into account cooperation with non-academic partners involved in the Programme.

Several activities, as described in paragraph 3.1 above, will be organized to support fellows in acquiring scientific skills in the chosen discipline, as well as scientific activities oriented to the acquisition of applicational abilities in different domains and disciplines.

#### **! Support and/or additional training in non-research oriented transferable skills.**

In order to improve their career development, fellows need also competences other than purely theoretical/technical ones. They will have to communicate, manage and plan projects, work in teams, look for money to carry out research, and so on.

INdAM will match such needs by organizing year by year some activities (courses and schools) especially intended for the fellows. The activities will take place at INdAM premises, or at INdAM research Units. Each fellow will participate to at least three activities.

At the end of the fellowship, the fellow will be invited to deliver a talk on the scientific results obtained in an official seminar organised by INdAM at its premises.

The final scientific results of the fellows will be displayed in a special section of the INdAM website and on the website of one of the INdAM National Research Groups.

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### **3.3 Dissemination of the scientific results of the fellows**

Relevant tasks are:

! to organise, at the end of each fellowship period, an official seminar at the premises of



the chosen partner institution, and an official seminar at INdAM premises, about the scientific results obtained by the fellows;

- ! construction and maintenance of a special section on the INdAM website and of the INdAM National Research Groups where the final scientific results of the fellows will be displayed;
- ! to assist fellows in drafting their scientific papers and in searching appropriate Journals and publishers. Fellows will be encouraged to present research papers and publications at meetings and conferences, as advised by their supervisors. Moreover, fellows will be encouraged to meet students from the partner University and present their research results in an informal and informative shape, in order to promote, stimulate and disseminate access to studies in Mathematics and/or applications.

A special section of the INdAM website will be devoted to the final scientific results of the fellows. It will display the production of the fellow at the end of the fellowship (papers, seminars, scientific reports, scientific software, patents, copyrights...) and a CV. The existence of such website section will be advertised worldwide periodically, addressing in particular public and private research organisations and private enterprises. The fellow page will be hosted in the website for at least four years after the end of the fellowship, and will be periodically kept up-to-date.

### **3.4 Intellectual Property Rights issues.**

Each fellow will be enrolled in a Department of the chosen University partner institution. Each such institution has its own Intellectual Property Right rules, coherent with EU and Italian law, which will be applied to any invention produced by the fellow. All PhD schools involved in the Programme foresee mandatory activities dedicated to promoting Intellectual Property and results of research. INdAM will assist fellows in publishing their results, in registering patents and copyrights, and in protecting Intellectual Property.

## **ALLEGATO 3**

### **Ethical issues**

#### **! Ethical issues management. Compliance with the ethical principles of H2020.**

INdAM is a public Institution, established as such by Italian law, and is subject to all ethical rules provided for by the Italian and European laws, including those reflected in the Charter of Fundamental Rights of the European Union and the relevant ethics rules of H2020. As a member of European Math. Society, INdAM has also approved and applies the “code of practice” of the EMS Ethics Committee (<http://www.euro-math-soc.eu/system/files/uploads/COP-approved.pdf>).

Past experience indicates that ethical issues are unlikely to arise in a research proposal in Mathematics and/or its applications. Should this be the case, the rules dictated by Italian laws, when applicable, and by EU Commission ethical principles for H2020, will be followed

The programme is devoted to support research in “Mathematics and/or its applications”; therefore proposals contemplating experiments on humans, animals, foetal issues/cells, human embryonic stem cells, human genetic material, human biological samples and human data collection are not included in the range of research themes of the programme. In case the proposed research needs experimental data to be processed, that should be acquired through scientific literature or scientific communications.

In any case the following fields of research shall not be financed (either directly or

indirectly) under the INdAM-DP-COFUND-2015 Programme:

- proposals which contemplate experiments on humans, animals, foetal tissues/cells, human embryonic stem cells, human genetic material, human biological samples, human data collection;
- research activity aiming at human cloning for reproductive purposes;
- research activity intended to modify the genetic heritage of human beings, which could make such changes heritable;
- research activities intended to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer;
- research activities destroying human embryos, including for the procurement of stem cells;
- research activities involving personal data (e.g. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction);
- research activities involving tracking the location or observation of people;
- research having direct military use;
- research having the potential for terrorist abuse.

The corresponding proposals will be considered ineligible by the INdAM staff and ruled out. In any case when submitting their proposals, all applicants are required to complete an Ethics Issues 2(EIT). Applicants who flag ethics issues in the Ethics Issues Table have to complete in addition a more in depth Ethics Self-Assessment. Both the EIT table and the Ethics Self-Assessment are to be filled according to H2020 Ethics Guidelines.

Moreover, each proposal must also comply with all ethical rules in force at the corresponding partner University.

#### **- Obligations regarding selected research proposals involving the use of human embryonic stem cells (hESC).**

Notwithstanding the stipulations under Article 34.3 of the Grant Agreement, the beneficiary (INdAM) shall inform the Research Executive Agency (REA) in writing of any research project selected for funding that may involve the use of human embryonic stem cells (hESC). Such research may not start without the approvals of the EC ethics review and of the relevant Programme Committee completed by the communication of the explicit approval in writing from the REA to the beneficiary.

If the beneficiary breaches any of its obligations regarding selected research proposals involving the use of human embryonic stem cells (hESC), the grant may be reduced (see Article 43 of the Grant Agreement) and the Grant Agreement may be terminated (see Article 50 of the Grant Agreement) without prejudice to any of the other measures described in Chapter 6 of the Grant Agreement.

## **ALLEGATO 4**

### **Open access to scientific publications**

The fellow must ensure open access (free of charge online access for any user) to all peerreviewed

scientific publications relating to his results. In particular, he must:

- (a) as soon as possible and at the latest on publication, deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications; moreover, he must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.
- (b) ensure open access to the deposited publication — via the repository — at the latest:

(i) on publication, if an electronic version is available for free via the publisher, or  
(ii) within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.

(c) ensure open access — via the repository — to the bibliographic metadata that identify the deposited publication.

The bibliographic metadata must be in a standard format and must include all of the following:

- the terms "Marie Skłodowska-Curie Actions";
- the project name: "INdAM Doctoral Programme in Mathematics and/or Applications Cofunded by Marie Skłodowska-Curie Actions", acronym: INdAM-DP-COFUND-2015, and grant number: 713485
- the publication date and length of embargo period;
- a persistent identifier.