

**Call for presentation of applications for assignment of no.3 PhD scholarships in “Mathematics and Computational Sciences”, funded by the Project PNRR - *ITSERR Italian Strengthening of the ESFRI RI RESILIENCE (Religious Studies Infrastructure: Tools, Innovation, Experts, Connection and Centers)* CUP B53C22001770006 and no.1 PhD Scholarship in “Physics”, Sicilian Region – Department of the Basin Authority of the Sicily River Basin District, funded by the Project “*Actions to improve water body quality*” – *Line of Intervention L2 “Identification of significant morphological alterations to water bodies – Studies for sediment management Programs art 117 paragraph 2 quarter D.Lgs. 152/2006”* – CUP F62G16000000001, by evaluation of project Proposals, only for eligible candidates, who are not already recipients of D.M. no. 351/2022 or D.M. no. 352/2022 Scholarships, in the general merit ranking relating to the Call for admission to the PhD Courses activated at the University of Messina – 38<sup>th</sup> CYCLE - referred to in D.R. No. 1741 of 27<sup>th</sup> June 2022 and subsequent Call D.R. No. 2603 of 5<sup>th</sup> October 2022.**

### THE RECTOR

- IN VIEW OF the Law of 3<sup>rd</sup> July 1998, No. 210, and in particular art. 4 in the matter of PhD courses, as amended by art. 19, paragraph 1, of the Law of 30<sup>th</sup> December 2010, No. 240;
- IN VIEW OF the Statute of the University, issued with D.R. No. 1244 of 14<sup>th</sup> May 2012 (published on G.U. - General Series No. 116 of 19<sup>th</sup> May 2012) and amended with D.R. No. 3429 of 30<sup>th</sup> December 2014 (published on G.U. - General Series No. 8 of 12<sup>th</sup> January 2015);
- IN VIEW OF D.M. No. 226 of 14<sup>th</sup> December 2021 concerning “*Regulation laying down procedures for the accreditation of PhD centers and PhD courses and criteria for the establishment of PhD courses by accredited bodies*”;
- IN VIEW OF the Regulation of the University of Messina concerning the PhD courses, issued with D.R. No. 834 of 25<sup>th</sup> March 2022;
- IN VIEW OF D.M. No. 301 of 22<sup>nd</sup> March 2022 with which the “*Guidelines for the accreditation of PhD courses*” were approved (Ministerial Note No. 8424 of 23<sup>rd</sup> March 2022, prot. No. 38641 of 24<sup>th</sup> March 2022) and D.M. No. 289 of 25<sup>th</sup> March 2021, with which the “General guidelines of the programming of the Universities 2021-2023 and indicators for the evaluation of the results” were defined;
- IN VIEW OF the resolutions of the Academic Senate, prot. no. 69064 of 30<sup>th</sup> May 2022, and the Academic Board, prot. no. 69066 of 30<sup>th</sup> May 2022, with which, for the 38<sup>th</sup> cycle, the proposals for renewal, new activation, and participation in PhD Courses in a partnership or in PhD courses of national interest and the allocation of positions, once evaluated the consistency with the objectives of the PNRR, were approved, as well as, with regard to no. 15 PhD Courses based at the University of Messina, the initiation of the selection procedures, by qualifications and examinations, for admission to the PhD Courses of the 38<sup>th</sup> cycle, was established;
- IN VIEW OF D.R. No. 1741 of 27<sup>th</sup> June 2022 (prot. no. 82863 of 27<sup>th</sup> June 2022), with which the public competition, by qualifications and examinations, for admission to no. 15 PhD Courses, activated by the University of Messina – 38<sup>th</sup> cycle was launched and the subsequent DD.RR. reference numbers from 2457 to 2470 and 2472 of 23<sup>rd</sup> September 2022, with which the competition proceedings were approved and the merit rankings and admissions to the 15

PhD Courses available with the PhD call referred to in D.R. No. 1741/2022 were published;

IN VIEW OF the resolutions of the Academic Senate and the Academic Board, respectively, prot. no. 121259 and no. 121739 of 3<sup>rd</sup> October 2022, with which the publication of a Call for presentation of applications for assignment of no. 14 PhD scholarships was authorized, expiring in 10 days from the publication, open to all the eligible candidates not already recipients of D.M. 351/2022 and D.M. 352/2022 scholarships in the competition for admission to the PhD Courses 38<sup>th</sup> cycle of the University of Messina, referred to in D.R. No.1741/2022, in order to assign the D.M. 351 and/or D.M. 352 positions available, by a selection based on the consistency evaluation of the projects presented by the candidates with regard to the obligatory topics referred to in D.M. No. 351 and No. 352 of 9<sup>th</sup> April 2022, carried out by the examination committees for admission to the PhD Courses expressly reconvened;

IN VIEW OF D.R. No. 2603 of 5<sup>th</sup> October 2022, prot. no. 123678 of 5<sup>th</sup> October 2022, with which the Call for presentation of applications for assignment of no. 14 PhD scholarships, authorized with the aforementioned resolutions;

IN VIEW OF the resolutions of the Academic Senate and the Academic Board of 27<sup>th</sup> September 2022, respectively prot. no. 121259 and no. 121739 of 27<sup>th</sup> September 2022, with which the publication of a subsequent Call for assignment of additional PhD scholarships in order to select the candidates and the related PhD projects for the implementation of the Research Programme "Sicilian MicronanoTech Research and Innovation Center – SAMOTHRACE" was authorized;

IN VIEW OF D.R. rep. no. 332/2023, prot. no. 14454 of 3<sup>rd</sup> February 2023, with which the Call for presentation of applications for assignment of no. 10 PhD scholarships funded by the Project "Innovation Ecosystems" – "Sicilian MicronanoTech Research And Innovation Center – SAMOTHRACE";

NOTED THAT the Sicilian Region – Department of the Basin Authority of the Sicily River Basin District, on 4<sup>th</sup> October 2022 signed a collaboration Agreement with the Universities of Catania (UNICT\_DSBGA), Messina (UNIME\_MIFT) and Palermo (UNIPA\_DiSTeM) to carry out the Project "Actions to improve water body quality" – Line of Intervention L2 "Identification of significant morphological alterations to water bodies – Studies for sediment management Programs art 117 paragraph 2 quarter D. Lgs. 152/2006" Action 2.2.1 – Completion and update of hydromorphological pressure risk analysis (rep. no. 1038 of 7<sup>th</sup> November 2022, prot. no. 140645);

GIVEN THAT the Board of the Department of Mathematics and Computer Science, Physical Sciences and Earth Sciences (MIFT) at its meeting on 21<sup>st</sup> December 2022 on a proposal from the scientific Supervisor of the aforementioned Agreement, Prof. Giovanni Randazzo, approved a review of the UNIME\_MIFT financial plan, which foresees, among other costs, the economic coverage of costs for PhD students and that the same review, with a note of the scientific Supervisor, prot. 3990 of 16<sup>th</sup> January 2023, was submitted to the Sicilian Region - Department of the Basin Authority of the Sicily River Basin District;

GIVEN THAT in the light of the aforementioned Agreement, considered the abovementioned review, Prof. Vincenza Crupi, Coordinator of the PhD Course in Physics, with a note prot. 4878 of 17<sup>th</sup> January 2023, has requested the activation of an additional PhD scholarship for the 38<sup>th</sup> cycle, as part of the project "Actions to improve water body quality" – Line of Intervention L2

“Identification of significant morphological alterations to water bodies – Studies for sediment management Programs art 117 paragraph 2 quarter D. Lgs. 152/2006”;

GIVEN

also that the University of Palermo with resolution no. 15 of 9<sup>th</sup> November 2022 of the Board of the Department of Mathematics and Computer Science (prot. 143602 of 10<sup>th</sup> November 2022) and subsequent resolutions no. 12/08 of 16<sup>th</sup> November 2022 of the Academic Senate and no. 10/16 of 17<sup>th</sup> November 2022 of the Academic Board (prot. 156401 of 2<sup>nd</sup> December 2022) granted no. 3 additional PhD scholarships on the project PNRR ITSEER Italian Strengthening of the ESFRI RI RESILIENCE (Religious Studies Infrastructure: Tools, Innovation, Experts, Connection and Centers) to the PhD Course in Mathematics and Computational Sciences, in partnership with the Universities of Catania and Messina, the latter to be the administrative headquarters;

GIVEN THAT

in the light of the resolutions of the University of Palermo, the three universities, which had already signed the Agreement for activating and financing the PhD Course in “Mathematics and Computational Sciences” 38<sup>th</sup> cycle A.Y. 2022/2023 (rep. 647/2022) signed an Addendum to the same Agreement (rep. 16/2023 prot. 3271 of 13<sup>th</sup> January 2023), which, changing articles 3 and 7, establishes to publish a call for assignment of the no. 3 additional PhD scholarships on the project PNRR ITSEER Italian Strengthening of the ESFRI RI RESILIENCE (Religious Studies Infrastructure: Tools, Innovation, Experts, Connection and Centers), at UNIME, administrative headquarters;

IN VIEW OF

the resolution of the Academic Board of 31<sup>st</sup> January 2023 prot. no. 13673/2023, with which the Administrative Department of Scientific Research and Internationalization is authorized to publish a Call for assignment of additional PhD scholarships, expiring in 10 days from the publication, open to all the eligible candidates in the competitions for admission to the PhD Courses in “Physics” and in “Mathematics and Computational Sciences”, who are not already recipients of DM 351 and/or DM 352 positions, in order to select the candidates for the assignment of the financed scholarships, on the basis of the related research projects, consistent with the obligatory topics referred to in the respective funding;

IN VIEW OF

the specific profiles required for the no. 4 PhD scholarships of this Call, indicated in the attachments **(Annexes No. 1-4)**;

IN VIEW OF

D.M. No. 247 of 23<sup>rd</sup> February 2022 with which, starting from 1<sup>st</sup> July 2022, the annual amount of the scholarship for the attendance of the PhD courses was redetermined in € 16.243,00, gross of social security charges payable by the recipient;

GIVEN

the need to adhere to the transversal principles provided by the PNRR, including, among others, the principle of contribution to the climate and digital goal (so called tagging), the principle of gender equality and the obligation of protection and enhancement of young people and, in particular, the ranking of eligible candidates related to the PhD Course in Mathematics and Computational Sciences (approved with Rector’s Decree Rep. no. 2463/2022, prot. no. 116630 of 23<sup>rd</sup> September 2022), which shows that respect of the principle of gender equality, which means the need to show that at least the 40% of the personnel temporarily recruited or recipient of PhD or research scholarships is of female gender, is already guaranteed in

the previous ranking;  
GIVEN THAT the total cost of the no. 3 Scholarships funded by the Project PNRR – ITSERR Italian Strengthening of the ESFRI RI RESILIENCE (Religious Studies Infrastructure: Tools, Innovation, Experts, Connection and Centers) CUP B53C22001770006 **equal to € 209.972,43** will be funded on the DR\_38\_MATEM\_UNIPA accounting project, while the total cost of the no. 1 PhD Scholarship funded by the Project Sicilian Region - Department of the Basin Authority of the Sicily River Basin District, Project “Actions to improve water body quality” – Line of Intervention L2 “Identification of significant morphological alterations to water bodies – Studies for sediment management Programs art 117 paragraph 2 quarter D. Lgs. 152/2006 - CUP F62G16000000001 **equal to € 69.990,01** will be funded on the POA\_FSC\_L2\_RANDAZZO - POA\_FSC\_L2\_RANDAZZO\_FIN accounting project (as confirmed with note Prot. no. 23378 of 21<sup>st</sup> February 2023);  
WITHOUT PREJUDICE TO any subsequent amendments and/or additions to this Call that will be advertised on the website of the University of Messina at the address <https://www.unime.it/bandi-e-concorsi>.

## DECREES

### Art. 1

#### Positions for which applications can be presented

Following the afore-mentioned resolution of the Academic Board, with regard to the PhD Courses mentioned below, activated at the University of Messina, for A.Y. 2022/2023 (38<sup>th</sup> Cycle) **the following positions with Scholarship** are available:

Positions on obligatory Projects		
PhD Courses	Projects	Number of positions
<b>MATHEMATICS AND COMPUTATIONAL SCIENCES</b>	<b><i>PNRR – “ITSERR Italian Strengthening of the ESFRI RI RESILIENCE (Religious Studies Infrastructure: Tools, Innovation, Experts, Connection and Centers) - CUP B53C22001770006;</i></b>	<b>NO. 3</b>
<b>PHISICS</b>	<b><i>Sicilian Region - Department of the Basin Authority of the Sicily River Basin District, “Actions to improve water body quality” – Line of Intervention L2 “Identification of significant morphological alterations to water bodies – Studies for sediment management Programs art 117 paragraph 2 quarter D. Lgs. 152/2006” - CUP F62G16000000001.</i></b>	<b>NO. 1</b>

**Please note:** the Project Proposal must be carried out by the candidate taking into consideration:

- for the PhD positions in **MATHEMATICS AND COMPUTATIONAL SCIENCES**, the **Topics** of the Work Packages of the Project **PNRR – “ITSERR Italian Strengthening of the ESFRI RI RESILIENCE (Religious Studies Infrastructure: Tools, Innovation, Experts, Connection and Centers)** indicated in the attachments to this Call (**Annexes no. 1-3**).
- for the PhD position in **Physics**, the **Topic** of the Project “*Actions to improve water body quality*” – *Line of Intervention L2 “Identification of significant morphological alterations to water bodies – Studies for sediment management Programs art 117 paragraph 2 quarter D.Lgs. 152/2006”*, indicated in the attachment to this Call (**Annex no. 4**).

The duration of the PhD Courses is **three years**.

The PhD courses will ensure respect for horizontal priorities and DNSH (Do No Significant Harm) principle of the PNRR.

## Art. 2 Admission requirements

For the PhD Courses indicated in art.1, **eligible** candidates (admitted and not admitted), who are **not already recipients of D.M. No. 351/2022 and No. 352/2022 scholarships**, in the merit ranking within the selection procedure referred to in D.R. No. 1741 of 27<sup>th</sup> June 2022 and the subsequent Call D.R. No. 2603 of 5<sup>th</sup> October 2022, can participate in this Call exclusively for the PhD Course for which they are in the ranking.

Admission requirements indicated in art. 2 of the Call for selection referred to in D.R. No. 1741 of 27<sup>th</sup> June 2022 are left unprejudiced.

## Art. 3 How to apply

**Eligible** candidates (admitted and not admitted) **who are not already recipients of scholarships according to D.M. No. 351/2022 and No. 352/2022** in the aforementioned merit ranking, holding the requirements referred to in art. 2, **must** submit, electronically, through the Esse3 platform <https://unime.esse3.cineca.it/Home.do> (where they are already registered as participants in the Call for selection referred to in D.R. No. 1741 of 27<sup>th</sup> June 2022) an application to participate in this Call, according to the form available at the link <https://www.unime.it/bandi-e-concorsi> and on the Esse3 platform, and the Project Proposal for every single position with scholarship they want to participate in, in the PhD Course.

The submission of the application through the online procedure implies the acceptance of the rules contained in this Call and in the attachments to this Call (**Annexes 1-4**), in the current PhD Courses Regulation at the University of Messina, in the rules of the Call referred to in D.R. No. 1741 of 27<sup>th</sup> June 2022, including the attachments, which are integral part of it, and in all the mentioned rules, by the candidates.

The procedure for participation will be active **until 6<sup>th</sup> March 2023 at 11.59 p.m.** After this period, the connection will be no longer active, and it will be no longer possible to complete the application form. Applications received after the indicated deadline, or produced and/or received in a different way, **will be excluded**.

**Candidates do not have to pay any contribution for participation in this procedure.**

## Art. 4 PhD examination Committees

The Project proposals referred to in this Call will be evaluated by the same examination Committees for admission to the PhD Courses (38<sup>th</sup> cycle), following a specific reconvening.

## Art. 5 Evaluation of the Project Proposal

The PhD examination Committee proceeds with the evaluation of the Project Proposal of the candidate, expressing a judgement of suitability and consistency in a closed session:

- for the PhD positions in **MATHEMATICS AND COMPUTATIONAL SCIENCES**, in relation **to the Topics** of the Work Packages of the Project **PNRR – “ITSERR Italian Strengthening of the ESFRI RI RESILIENCE (Religious Studies Infrastructure: Tools, Innovation, Experts, Connection and Centers)** indicated in the attachments to this Call (**Annexes no. 1-3**).
- for the PhD position in **PHYSICS**, in relation **to the Topic** of the Project **Sicilian Region - Department of the Basin Authority of the Sicily River Basin District “Actions to improve water body quality” – Line of Intervention L2 “Identification of significant morphological alterations to water bodies – Studies for sediment management Programs art 117 paragraph 2 quarter D. Lgs. 152/2006”**, indicated in the attachment to this Call (**Annex no. 4**).

Candidates **are not permitted** to attend this evaluation.  
Committees must finalise work **by 13<sup>th</sup> March 2023**.

## Art. 6 Admission to PhD courses

Candidates are admitted to PhD Courses, according to the ranking order and taking into account the suitability expressed by the PhD Committee for the individual obligatory Projects presented by the candidates.

Reference is made in full **to art. 6** of the Call referred to in D.R. No. 1741 of 27<sup>th</sup> June 2022.

## Art. 7 Enrollment Procedures

Candidates admitted to the PhD courses based on the final ranking must express their acceptance **within the peremptory deadline of 3 days from the publication** of the evaluation results on the website <https://www.unime.it/bandi-e-concorsi>.

Failure to complete the enrollment will result in the forfeiture of admission to the PhD Course. **No personal communications will be sent to candidates. Candidates admitted to the PhD Courses are responsible for checking the dates and enrollment procedures.**

For more information on how to enroll, reference is made in full to what is provided for **by art. 7** of the Call referred to in D.R. No. 1741 of 27<sup>th</sup> June 2022 published at the link <https://archivio.unime.it/it/ricerca/dottorati-ricerca>.

Agreement between the winner of the PhD Scholarship of this Call and the University, where foreseen by the Funder, will be regulated by the drawing up of a contract. The contract must be signed by the winner with the digital signature.

## Art. 8 Scrolling of ranking and replacement

In the event of forfeiture or waiver by admitted candidates, the final ranking will be scrolled down for positively evaluated candidates **only in accordance with the procedures and deadlines provided for** by the rules established by the Funders related to the Project indicated in this Call, as well as in compliance with the conditions established in art. 8 of D.R. No. 1741 of 27<sup>th</sup> June 2022.

## Art. 9 Taxes and fees

For payment of taxes and fees for enrollment and registration to PhD Courses, reference is made to what is provided for by art. 9 of the Call referred to in D.R. No. 1741 of 27<sup>th</sup> June 2022.

## Art.10 Scholarships

The PhD scholarships have a total duration of three years and are annually renewed, following a positive verification by the PhD Academic Board regarding the completion of the program of the activities planned for the previous year, as provided for by art. 20 of the PhD Regulation of the University of Messina.

Starting from 1<sup>st</sup> July 2022, the annual amount of the scholarship for the attendance of the PhD courses is equal to 16.243,00 euros, gross of social security charges payable by the recipient.

The conduct of activity research abroad, prior authorization of the PhD Academic Board, is regulated by the PhD Regulation of the University of Messina.

The scholarship **cannot be combined** with any other scholarship, assigned for any purpose, except for those granted by Italian or foreign Institutions useful for integrating the PhD student's training and research activity with stays abroad. The PhD scholarship is subject to the payment of social security contributions INPS "*Gestione Separata*" in accordance with current legislation, of which two-thirds shall be borne by the administration and one-third by the PhD student with a scholarship.

## Art. 11 Rights and obligations of the PhD Student

PhD students must attend the Courses and continuously carry out study and research activities under the approved individual programme, as provided for by art. 23 of the University Regulation.

The PhD student **recipient of the PhD Scholarships in Mathematics and Computational Sciences** must carry out research activities mainly at the registered venue of the University of Palermo.

For positions with **an obligatory Project** of this Call, the PhD student must comply with all the conditions imposed by the Funder of the scholarship and is committed to providing at any time all the documents considered necessary by the aforementioned Funder, in relation to the reporting of the funded Project.

## Art. 12

### Attendance, suspension, forfeiture, and waiver

For the regulation on attendance, suspension, forfeiture and waiver, reference is made to art. 12 of the Call referred to in D.R. No. 1741 of 27<sup>th</sup> June 2022, without prejudice to respect of the constraints of the rules related to the Projects funded in this Call.

## Art. 13

### Processing of personal data

Pursuant to art. 13 of European Regulation 2016/679, this University is the owner of the processing of personal data provided by the candidate to this selection and the same processing will be carried out in compliance with the aforementioned European Regulation for the purposes of fulfilling the disclosure requirements referred to in Legislative Decree 33/2013. Data may be used and stored exclusively for the legal obligations related to the activity of this selection. Provision of data is required for these purposes. Data will be processed by this University, as Data Controller, in compliance with the provisions of European Regulation 2016/679 in the manner foreseen by the full set of information published on the University website. In accordance with art.15 ff. of European Regulation 2016/679, personal data collected by the Data Controller, may be checked and rectified, updated or deleted in any case and at any time, by contacting the Data Processing Officer (reachable at the email address: [rpd@unime.it](mailto:rpd@unime.it)) and in the case of non-compliance with European Regulation 2016/679 a complaint may be addressed to the Personal Data Protection Authority.

The notice is available in the privacy section of the University, <https://www.unime.it/privacy-e-cookie-policy>, and is an integral part of this Call. The candidate acknowledges having read the aforementioned notice by signing the application form.

## Art. 14

### Properties of Results and Confidentiality

Reference is made to art. 14 of the Call referred to in D.R. No. 1741 of 27<sup>th</sup> June 2022.

## Art. 15

### Responsible for the procedure

The person in charge of administrative procedure is Dr. Angelina Venezia, Head of the "PhD Unit" of the Administrative Department "Scientific Research and Internationalization" of this University. For information, interested parties may contact the PhD Unit, telephone numbers: 090 676 8716/8502/8286/8277/8281 e-mail: [dottorati@unime.it](mailto:dottorati@unime.it).

## Art. 16

### Final Rules

Although not expressly mentioned in this Call, reference is made to the current legislation on the subject, and in particular to the rules contained in art. 4 of Law 210/1998, in art. 19 of Law No. 240/2010, in D.M. No. 226/2021 and in the Regulation of the PhD courses of the University of Messina (D.R. No. 834/2022), in the Legislative Decree No. 81/2015 and subsequent amendments and additions, in the Regulation for the discipline of the patent activity of the University of Messina (D.R. No. 2773/2020), including those contained in the



Conventions for the establishment of PhD courses in agreement and/or for the financing of scholarships, in the rules established by the Funder referred to, among others, in the Guidelines for accountability of the ITSERR Project, addressed to the implementing bodies of the system initiatives Mission 4 Component 2", as well as in the other current provisions.

Participation in the procedure implies, as previously acquired, consent to the release of the documents presented and of the minutes of the competition, in the case of a request by the other competitors, pursuant to the legislation on access to documents.

The University assumes no responsibility for the dispersion of communications resulting from inaccurate indications of residence and address by the candidate or failure or late communication of the change of the same, nor for any postal or IT errors not attributable to the fault of the University itself.

This Decree, written both in Italian and in the English language, will be published on the register of the University at these links:

<https://archivio.unime.it/it/ateneo/amministrazione/albo-online> and

<https://www.unime.it/bandi-e-concorsi>.

THE RECTOR  
Professor Salvatore Cuzzocrea

Avviso pubblico di ricognizione per l'assegnazione di n. 3 borse di dottorato in "Matematica e Scienze Computazionali", finanziate sul Progetto PNRR - *ITSERR Italian Strengthening of the ESFRI RI RESILIENCE (Religious Studies Infrastructure: Tools, Innovation, Experts, Connection and Centers)* - CUP B53C22001770006 e di n. 1 Borsa di dottorato in "Fisica", Regione Sicilia - Dipartimento dell'Autorità di Bacino del Distretto Idrografico della Sicilia, finanziata sul Progetto *Interventi per il miglioramento della qualità dei corpi idrici - Linea di intervento L2 Individuazione delle alterazioni morfologiche significative dei corpi idrici - Studi per i Programmi di gestione dei sedimenti art 117 comma 2 quater D.lgs. 152/2006* - CUP F62G16000000001, mediante la valutazione di Proposte progettuali, riservato ai candidati idonei, non già assegnatari di Borse D.M. n. 351/2022 o D.M. n. 352/2022, nella graduatoria generale di merito relativa al Bando per l'ammissione ai Corsi di Dottorato di ricerca e attivati dall'Università degli Studi di Messina - XXXVIII CICLO - di cui al DR n.1741 del 27.06.2022 e al successivo Avviso D.R. n.2603 del 05.10.2022.

### **Corso di Dottorato di Ricerca in "Matematica e Scienze Computazionali"**

*Scheda n.1 - Progetto ITSERR (WP3, Activity 3.2.2) - Preparation of components for T-Res.*

**Titolo:** Preparazione di componenti per T-Res (Progetto ITSERR - WP 3, Attività 3.2.2)

**Tematica:** - Sviluppo di componenti IT per T-ReS, con l'obiettivo di assistere e guidare i team di sviluppo e analisi nella ricerca algoritmica per GNORM, un software per l'analisi automatica e la categorizzazione delle fonti normative religiose stampate attraverso tecniche di data mining e fornendo una visualizzazione 3D delle fonti analizzate.

**Profilo candidato:** Il candidato dovrà possedere competenze di matematica e/o informatica.

**Title:** Preparation of components for T-Res (Project ITSERR - WP 3, Activity 3.2.2)

**Topic:** Development of IT components for T-ReS. Its goal is to assist and steer the development and analysis teams in algorithmic research for GNORM, a software for the automatic analysis and categorisation of printed religious normative sources through data mining techniques and providing a 3D visualisation of the analysed sources.

**Candidate profile:** The candidate must have skills in mathematics and/or computer science.

**Avviso pubblico di ricognizione per l'assegnazione di n. 3 borse di dottorato in "Matematica e Scienze Computazionali", finanziate sul Progetto PNRR - ITSERR Italian Strengthening of the ESFRI RI RESILIENCE (Religious Studies Infrastructure: Tools, Innovation, Experts, Connection and Centers) - CUP B53C22001770006 e di n. 1 Borsa di dottorato in "Fisica", Regione Sicilia - Dipartimento dell'Autorità di Bacino del Distretto Idrografico della Sicilia, finanziata sul Progetto Interventi per il miglioramento della qualità dei corpi idrici - Linea di intervento L2 Individuazione delle alterazioni morfologiche significative dei corpi idrici - Studi per i Programmi di gestione dei sedimenti art 117 comma 2 quater D.lgs. 152/2006 - CUP F62G1600000001, mediante la valutazione di Proposte progettuali, riservato ai candidati idonei, non già assegnatari di Borse D.M. n. 351/2022 o D.M. n. 352/2022, nella graduatoria generale di merito relativa al Bando per l'ammissione ai Corsi di Dottorato di ricerca e attivati dall'Università degli Studi di Messina - XXXVIII CICLO - di cui al DR n.1741 del 27.06.2022 e al successivo Avviso D.R. n.2603 del 05.10.2022.**

### **Corso di Dottorato di Ricerca in "Matematica e Scienze Computazionali"**

*Scheda n.2 - Progetto ITSERR (WP4, Activity 4.2.3) - Word embedding.*

**Titolo:** Word embedding

**Tematica:** Attività di ricerca su strumenti software per il word embedding e piattaforme per standoff annotation, ovvero realizzazione di modelli e tecniche che consentano una mappatura semantic-based delle parole del corpus di riferimento; in una seconda fase, supervisione dell'attività di sviluppo e realizzazione/adattamento di strumenti software per il word embedding e piattaforme per standoff annotation, in riferimento al software prototipo DaMSym per l'analisi automatica di corpus o testi antichi di riferimento.  
**Profilo candidato:** Il candidato dovrà possedere competenze di matematica e/o informatica.

**Title:** Word embedding

**Topic:** Research on software tools for word embedding and platforms for standoff annotation, i.e., realization of models and techniques that allow semantic-based mapping of words in the reference corpus; in a second stage, supervision of the development activity and realisation/adaptation of software tools for word embedding and platforms for standoff annotation, with reference to the DaMSym prototype software for the automatic analysis of corpus or ancient reference texts.

**Candidate profile:** The candidate must have skills in mathematics and/or computer science.

**Avviso pubblico di ricognizione per l'assegnazione di n. 3 borse di dottorato in "Matematica e Scienze Computazionali", finanziate sul Progetto PNRR - ITSERR Italian Strengthening of the ESFRI RI RESILIENCE (Religious Studies Infrastructure: Tools, Innovation, Experts, Connection and Centers) - CUP B53C22001770006 e di n. 1 Borsa di dottorato in "Fisica", Regione Sicilia - Dipartimento dell'Autorità di Bacino del Distretto Idrografico della Sicilia, finanziata sul Progetto Interventi per il miglioramento della qualità dei corpi idrici - Linea di intervento L2 Individuazione delle alterazioni morfologiche significative dei corpi idrici - Studi per i Programmi di gestione dei sedimenti art 117 comma 2 quater D.lgs. 152/2006 - CUP F62G16000000001, mediante la valutazione di Proposte progettuali, riservato ai candidati idonei, non già assegnatari di Borse D.M. n. 351/2022 o D.M. n. 352/2022, nella graduatoria generale di merito relativa al Bando per l'ammissione ai Corsi di Dottorato di ricerca e attivati dall'Università degli Studi di Messina - XXXVIII CICLO - di cui al DR n.1741 del 27.06.2022 e al successivo Avviso D.R. n.2603 del 05.10.2022.**

### **Corso di Dottorato di Ricerca in "Matematica e Scienze Computazionali"**

*Scheda n.3 - Progetto ITSERR (WP5, Activity 5.2.4) - Extraction techniques.*

**Titolo:** Tecniche di estrazione

**Tematica:** Validazione e, eventualmente, supervisione delle tecniche di riconoscimento ed estrazione di informazioni sviluppate, sia su campioni di materiali reperiti relativi alla piattaforma Digital Maktaba per la creazione di cataloghi digitali multi-alfabetici per la gestione di opere in alfabeti non latini, sia su corpora più ampi, disponibili in letteratura e forniti da istituzioni partner.

**Profilo candidato:** Il candidato dovrà possedere competenze di matematica e/o informatica.

**Title:** *Extraction techniques*

**Topic:** Validation and, possibly, supervision, of the developing/developed recognition and extraction techniques, both on samples of materials related to the platform Digital Maktaba to create multi-alphabet digital catalogues for the management of works in non-Latin alphabets, and on larger corpora, available in the literature and provided by partner institutions.

**Candidate profile:** The candidate must have skills in mathematics and/or computer science.

**Avviso pubblico di ricognizione per l'assegnazione di n. 3 borse di dottorato in "Matematica e Scienze Computazionali", finanziate sul Progetto PNRR - ITSEER Italian Strengthening of the ESFRI RI RESILIENCE (Religious Studies Infrastructure: Tools, Innovation, Experts, Connection and Centers) - CUP B53C22001770006 e di n. 1 Borsa di dottorato in "Fisica", Regione Sicilia - Dipartimento dell'Autorità di Bacino del Distretto Idrografico della Sicilia, finanziata sul Progetto Interventi per il miglioramento della qualità dei corpi idrici - Linea di intervento L2 Individuazione delle alterazioni morfologiche significative dei corpi idrici - Studi per i Programmi di gestione dei sedimenti art 117 comma 2 quater D.lgs. 152/2006 - CUP F62G16000000001, mediante la valutazione di Proposte progettuali, riservato ai candidati idonei, non già assegnatari di Borse D.M. n. 351/2022 o D.M. n. 352/2022, nella graduatoria generale di merito relativa al Bando per l'ammissione ai Corsi di Dottorato di ricerca e attivati dall'Università degli Studi di Messina - XXXVIII CICLO - di cui al DR n.1741 del 27.06.2022 e al successivo Avviso D.R. n.2603 del 05.10.2022.**

### **Corso di Dottorato di Ricerca in "Fisica"**

*Scheda n. 4 - Progetto Autorità di Bacino Idrografico della Sicilia "Interventi per il miglioramento della qualità dei corpi idrici" - Linea d'intervento L2 Individuazione delle alterazioni morfologiche significative dei corpi idrici.*

**Titolo:** Effetti dei cambiamenti climatici sullo stato di salute geomorfologico - sedimentologica dei bacini idrografici siciliani.

**Tematica:** Il presente progetto di ricerca si inserisce nell'ambito di un più ampio accordo sottoscritto tra l'Autorità di Bacino della Regione Siciliana e il Dipartimento di Scienze matematiche e informatiche, Scienze fisiche e Scienze della terra (MIFT) di UNIME.

Il progetto mira alla definizione del quadro delle pressioni idro-morfologiche agenti sui 256 corpi idrici superficiali individuati nell'intero territorio regionale, attraverso l'applicazione delle metodologie previste dalle Linee guida IDRAIM, evidenziando gli effetti dei cambiamenti climatici.

Il progetto di ricerca si focalizzerà, sulla verifica di due contesti geografici differenti, quello messinese e quello centro meridionale, utilizzando un approccio geomorfologico e sedimentologico.

Lo studio si avvarrà del supporto di immagini satellitari e da drone e verrà finalizzato in un GIS di sistema dell'intero territorio.

Il Programma di ricerca potrà prevedere un periodo all'estero di n. 6 mesi in una istituzione da individuare.

**Profilo candidato:** Il candidato dovrà possedere competenze di fisica e di geologia e laurea in una delle seguenti classi: LM-17 Fisica, LM-74 Scienze e Tecnologie Geologiche.

Conoscenza della lingua inglese scritta e parlata.

**Title:** Effects of climate change on the geomorphological - sedimental health state of Sicilian water basins

**Topic:** This research project is part of a broader agreement signed between the Basin Authority of the Sicilian Region and the Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences (MIFT) of UNIME.

The project aims at defining the framework of the hydro-morphological pressures acting on the 256 surface water bodies identified throughout the region, through the application of the methodologies envisaged by the IDRAIM Guidelines, highlighting the effects of climate change. The research project will focus on the verification of two different geographical contexts (the areas of Messina and the central-southern Sicily), using a geomorphological and sedimentological approach.

The study will make use of the support of satellite and drone images and will be finalized in a GIS system of the entire territory.

The research program can foresee a period abroad of n. 6 months in an institution to be identified.

**Candidate profile:** The candidate must have skills in physics and geology and a master's degree in one of the following classes: LM-17 Physics, LM-74 – Geological Sciences and Technologies.

Knowledge of written and spoken English.