



UNIVERSITÀ DEGLI STUDI DELL'AQUILA

Area Gestione risorse umane
Settore Concorsi e Selezioni

D.R. Rep. n. * - 2025 - Prot. n. * del * Allegati 6
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A public selection procedure based on qualifications and interview is being held at the University of L'Aquila for awarding n. 7 research contracts through the stipulation of a two-year, fixed-term contract, pursuant to Art. 22, Law n. 240, 30.12.2010, as amended by Art. 14, par. 6-septies of Leg. Decree n. 36 converted with amendments by Law n. 79, 29 June 2022.

THE RECTOR

Having regard to Italian Law 168, 9 May 1989 establishing the Ministry of Higher Education, Scientific Research and Technology;

Having regard to Italian Law n. 241, 7 August 1990, as amended and supplemented, concerning administrative procedures and the right to access administrative documents;

Having regard to Italian Law 104, 5 February 1992 as amended and supplemented and Italian Law 68, 12 March 1999;

Having regard to Presidential Decree 445, 28 December 2000 as amended and supplemented, containing regulations concerning administrative documentation (*Testo Unico*);

Having regard to Italian Law n. 106, 15 April, 2004 and Presidential Decree n. 252, 3 May 2006, containing norms relating to depositing documents of cultural interest for public use;

Having regard to Leg. Decree n. 82, 7 March 2005, "Digital Administration Code", as amended and supplemented;

Having regard to Italian Law n. 240, 30 December 2010, "Norms regarding the organization of Universities, academic personnel and recruitment, as well as mandating the Government to provide incentives for quality and efficiency of the University system", and in particular, Art. 22;

Having regard to the amendments to Art. 22 of Italian Law 240, 30 December 2010 by Art. 14, Leg. Decree n. 36, 30 April 2022, converted with amendments by Law n. 79, 29 June 2022;

Having regard to Presidential Decree n. 232, 15 December 2011, concerning "Regulations as to remuneration of professors and researchers, pursuant to Art. 8, par. 1 and 3 of Italian Law 240, 30 December 2010";

Having regard to Law n. 183, 12 November 2011 (*Legge di Stabilità 2012*) and in particular Art. 15 regarding certifications and declarations;

Having regard to Leg. Decree n. 49, 29 March 2012, in particular, Art. 5, par. 5, for disciplining the programming, monitoring and assessment of budget management and recruiting policies adopted by universities;

Having regard to Ministerial Decree n. 639, 2 May 2024, "Determination of Scientific Disciplinary Groups and related declaratory, as well as rationalization and updating of Academic Recruitment Fields and their renewal to Scientific Disciplinary Groups";

Having regard to the University of L'Aquila's Code of Ethics/Behaviour established by the Rector's Decree n. 1489/2023, 24 November 2023;

Having regard to Leg. Decree 196, 30 June 2003 and Leg. Decree n. 101, 10 August 2018, implementing the Regulation (EU) 2016/679 of the European Parliament and of the Council, 27 April



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2016, on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation);

Having regard to the current Statute of the University of L'Aquila;

Having regard to the University of L'Aquila's Regulations concerning the awarding of research contracts, in compliance with Art. 22 of Italian Law n. 240, 30 December 2010, established by the Rector's Decree n. 270, 31 March 2025;

Having regard to the contract concerning the contractual sequence on the Research contract ex Art. 22, Italian Law n. 240, 30 December 2010, undersigned on 18 March 2025, and in particular, Art. 2, par. 2: *"Anyhow, the amount of the contract referred to in paragraph 1 may not be less than the initial remuneration due to the fixed-term, part-time researcher and may not be higher than the initial remuneration due to the fixed-term, full time researcher"*;

Having regard to Art. 4 and Art. 6, in particular, of the above mentioned regulation, according to which the amount of the comprehensive gross annual remuneration is equal to the initial remuneration due to the fixed-term, part-time researcher. In the deliberation such remuneration may be increased according to the complexity criteria of the research project and anyhow within the initial remuneration due to the fixed-term, full time researcher. Research contracts financed by external funds may anyhow provide for higher remuneration, in case the amount is established by the funding body;

Having regard to

- the resolution n. 18/2025 of the Department of Physical and Chemical Sciences dated 14 October 2025 - forwarded with note n. 3567/2025 on 5 November 2025 and received the same date with Prot. n. 180940/2025 - concerning the request of a selection procedure to award **n. 1**, two-year research contract in compliance with Art. 22 of Italian Law 240/2010, 30 December 2010, for the Scientific Disciplinary Group 02//PHYS-03 - Experimental Physics of the Matter and Applications - Academic Discipline **PHYS-03/A** - Experimental Physics of the Matter and Applications;
- the resolution Rep. n. 274/2025 of the Department of Information Engineering, Computer Science and Mathematics dated 12 November 2025 - forwarded with note n. 6125/2025 on 14 November 2025 and received the same date with Prot. n. 180126/2025 - concerning the request of a selection procedure to award **n. 1**, two-year research contract in compliance with Art. 22 of Italian Law 240/2010, 30 December 2010, for the Scientific Disciplinary Group 01/INFO-01 - Informatics - Academic Discipline **INFO-01/A** - Informatics;
- the resolution Rep. n. 291/2025 of the Department of Information Engineering, Computer Science and Mathematics dated 3 December 2025 - forwarded with note n. 6466/2025 on 4 December 2025 and received the same date with Prot. n. 18777/2025, integrated by note Prot. n. 6514 dated 9 December 2025 and received the same date with Prot. n. 188938/2025 - concerning the request of a selection procedure to award **n. 2**, two-year research contracts in compliance with Art. 22 of Italian Law 240/2010, 30 December 2010, for the Scientific Disciplinary Group 01/INFO-01 - Informatics - Academic Discipline **INFO-01/A** - Informatics;
- the resolution Rep. n. 258/2025 of the Department of Industrial and Information Engineering and Economics dated 8 September 2025 - forwarded with note n. 6857/2025 on 4 December 2025 and received the same date with Prot. n. 187805/2025 - concerning the request of a selection procedure to award **n. 1**, two-year research contract in compliance with Art. 22 of Italian Law 240/2010, 30 December 2010, for the Scientific Disciplinary Group 09/ICHI-01



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- Systems, Methods and Technologies of Chemical and Process Engineering - Academic Discipline **ICHI-01/C** - Analysis, Design and Control of Chemical Processes;
- the resolution Rep. n. 257/2025 of the Department of Industrial and Information Engineering and Economics dated 8 September 2025 - forwarded with note n. 6857/2025 on 4 December 2025 and received the same date with Prot. n. 187805/2025 - concerning the request of a selection procedure to award **n. 1**, two-year research contract in compliance with Art. 22 of Italian Law 240/2010, 30 December 2010, for the Scientific Disciplinary Group 09/ICHI-01 - Systems, Methods and Technologies of Chemical and Process Engineering - Academic Discipline **ICHI-01/C** - Analysis, Design and Control of Chemical Processes;
- the resolution Rep. n. 256/2025 of the Department of Industrial and Information Engineering and Economics dated 8 September 2025 - forwarded with note n. 5930/2025 on 3 November 2025 and received the same date with Prot. n. 169426/2025 - concerning the request of a selection procedure to award **n. 1**, two-year research contract in compliance with Art. 22 of Italian Law 240/2010, 30 December 2010, for the Scientific Disciplinary Group 09/ICHI-01 - Systems, Methods and Technologies of Chemical and Process Engineering - Academic Discipline **ICHI-01/B** - Fundamentals of Chemical Engineering;

Having verified that the expense concerning the above-mentioned research contracts, each for the two-year period, shall weigh on:

- a) for the Academic Discipline PHYS-03-06/A, totalling € 107.000,00, shall weigh on the funds of the following projects:
 - ✓ € 90.100,00 on the funds of the Project "SHEEP: Symmetry-broken HEterostructurEs for Photovoltaic applications", PRIN2022-PNRR (CUP E53D23018380001), deadline 28 February 2026.)
 - ✓ € 16.900,00 on the funds as per Ministerial Decree n. 737/2021 allocated to the Department of Physical and Chemical Sciences (CUP E19J21015170001), deadline 30 June 2026;
- b) for the Academic Discipline INFO-01/A, totalling € 101.494,86, shall weigh on the funds of the following projects:
 - 4 monthly payments on the funds of the project DM_737_ DM737.PNRR_DISIM for € 16.915,81, deadline 30 June 2026;
 - 20 monthly payments on the funds of the project 04UE.MOSAICO for € 84.579,05, deadline 31 December 2029;
- c) for the Academic Discipline INF0-01/A, n. 2 positions totalling € 217.564,20 shall weigh on the funds allocated to the following project:
 - ✓ University Project HPC_BIG_DATA_QUANTUM. Coordinator: Prof. Massimo Tivoli, deadline 31 December 2028;
- d) for the Academic Discipline ICHI-01/C, totalling € 101.494,86, shall weigh on the funds of the following projects:
 - ✓ € 67.633,24 on the funds of the Project WEEKO (Deadline 1° March 2027);



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✓ € 42.336,76 on the funds of the Project RE-KAR-PCB (Deadline 30 June 2029).

- e) for the Academic Discipline ICHI-01/C totalling € 101.494,86, shall weigh on the funds of the following project: Project 101213673 - LIFE24-ENV-IT-SIRCULAR, U-GOV code 05UE.IPPOLITOSIRCULAR CUP E13C25002000006 running from 1° June 2025 to 31 May 2028.
- f) for the Academic Discipline ICHI-01/B totalling € 101.494,86, shall weigh on the funds of the following project ERMES, 05EV.DICARLOERMES (CUP F57G25000120006) deadline 31 December 2026;

Having regard to the resolution n. 348-2025 issued by the Board of Directors on 17 December 2025, after approval expressed by the Board of Auditors (verbal n. 3 dated 23 January 2026) authorizing the above-mentioned public selection procedures;

DECREES THE FOLLOWING

Art. 1

Public Selection procedure based on qualifications and interview

1. A public selection procedure, based on qualifications and interview, is being held at the University of L'Aquila for awarding n. 7 research contracts, pursuant to Art. 22, Law n. 240, 30.12.2010, as amended by art. 14, par. 6-septies of Leg. Decree n. 36 converted with amendments by Law n. 79, 29 June 2022, for the specific research programme set out in Attachments A, B, C, D, E and F which form an integral part of this announcement.

Attachment	Department	SDG	AD	N. of positions
A	Department of Physical and Chemical Sciences	02/PHYS-03	PHYS-03/A	1
B	Department of Information Engineering, Computer Science and Mathematics	01/INFO-01	INFO-01/A	1
C		01/INFO-01	INFO-01/A	2
D	Department of Industrial and Information Engineering and Economics	09/ICHI-01	ICHI-01/C	1
E		09/ICHI-01	ICHI-01/C	1
F		09/ICHI-01	ICHI-01/B	1



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The Scientific Disciplinary Group, the requirements, the duration of the fixed-term employment contract, the place where the research activity is to be carried out and the research programme are indicated in Attachments A, B, C, D, E and F.

The University guarantees equal opportunities for men and women for access to employment and treatment at work.

Art.2

Admission Requisites

1. The selection is open to Italian or foreign candidates, holding, on the date of the deadline for submitting applications, a Ph.D., or a degree obtained abroad assessed as equivalent by the Examining Board for the sole purpose of awarding the research contract, or a medical Specialization Diploma, where required.
Those candidates holding the foreign qualification shall attach it to the application, accompanied by a certified translation, as in this case the personal declaration pursuant to Presidential Decree n. 445/2000 does not apply.
2. May also participate in the selection process Italian or foreign candidates who are enrolled in the third year of a Ph.D. course or in the final year of the medical Specialization Diploma, provided that the degree is obtained within six months following the date of publication of the selection announcement. Such candidates must attach to the application a certified translation (into Italian or English) issued by the competent university attesting that the degree is to be achieved within six months following the date of publication of the selection announcement.
The Examining Board shall assess the equivalency of the qualification to be obtained abroad for the sole purpose of the procedure.
3. Pursuant to Art. 22-ter, paragraph 9, Italian Law 240/2010 research contracts referred to in Article 22 and contracts referred to in Article 24, Italian Law 240/2010 are not compatible with each other and cannot be benefited from simultaneously by the same holder. The overall duration of the relationships established with the holders of the positions referred to in Articles 22, 22-bis and 22-ter as well as the contracts referred to in Article 24, Italian Law 240/2010, also with different state, non-state or telematic universities, with Higher Education Institutions in Art, Music and Dancing, with the institutions whose postgraduate scientific diploma has been recognized as equivalent to the title of research doctorate pursuant to Article 74, paragraph 4, Presidential Decree n. 382, 11 July 1980 and with public research bodies cannot, in any case, exceed eleven years, even if not continuing. For the purposes of the above-mentioned relationships maternity or paternity or sick leave as provided in the laws in force shall not be taken into account.
4. If obtained abroad, the qualification must be accompanied by the official declaration of equivalency issued by the relevant authorities of the foreign country. If the candidate is not in possess of such a documentation within the deadline for application submission, he/she shall submit a copy of the application for obtaining such a declaration.
Therefore, in the latter case, candidates are granted conditional admission.
5. Candidates, to be admitted to the selection procedure, must also possess the following requisites:
 - 1) to be in possession of their civil and political rights. For non-Italian citizens and non-refugee or subsidiary protection status candidates, enjoyment of civil rights is to be referred to their country of citizenship;
 - 2) physical capability to the employment. The Administration reserves the right to verify the winner of the selection procedure with a medical control, in accordance with current legislation.



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6. Pursuant to Art. 22, Italian Law 240/2010, the following categories may not participate in this public selection procedure:
 - a) First or second tier university Professors or Researchers on open-ended contracts, even if terminated;
 - b) those who have benefited from fixed-term researcher (RTT) contracts as per Article 24, Law 240/2010, as amended by Leg. Decree 36/2022 converted by Law 79/2022;
 - c) tenured personnel, hired on permanent contracts, of Universities, public research bodies and Institutions whose postgraduate scientific diploma has been recognized as equivalent to the title of research doctorate pursuant to Article 74, paragraph 4, Presidential Decree n. 382, 11 July 1980;
 - d) individuals who are related, up to the fourth degree, to professors belonging to the recruiting Department or the Structure proposing the activation of the contract, or with the Rector, the General Director, or any member of the Board of Directors of the University.
7. In any case, the following may not participate in the selection procedure:
 - 1) those who are excluded from the enjoyment of civil and political rights;
 - 2) those who have been dismissed or discharged from their employment with a public administration for persistent inadequate performance;
 - 3) those who have been declared disqualified from another state job, pursuant to Article 127, letter d), Presidential Decree n. 3, 10 January 1957.

The prescribed requirements must be met on the date of the deadline for submitting applications for admission to the selection.

Art. 3

Submitting and sending the application online

1. The application to take part in the procedure, as well as the qualifications, documents and publications deemed useful for the procedure, are to be submitted telematically, under penalty of exclusion, via the online tool available at <https://pica.cineca.it/univaq>.

No other ways of presenting applications or documents for the procedure are allowed for participation in this procedure.

The application procedure must be completed, under penalty of exclusion, **no later than h 23.59 of the twentieth day following the day of the publication.**

The computer application necessarily requires that the candidate has an e-mail account in order to register or he/she may also log in using the SPID or CIE credentials. Candidates must enter all data required to fill in application and attach all documents in .pdf format. The application form must be filled in all its parts according to the instructions given by the telematic procedure. Within the deadline for application the system allows to save a draft of the application. The date of telematic submission of the application shall be certified by a receipt sent automatically by the system by e-mail. Applications received after the deadline set in this selection announcement shall not be considered. An identification number shall be assigned to each application which, along with the selection procedure code indicated in the computer application, shall be quoted in any further notice.

2. The application submission shall be perfected and concluded in the following ways:

- **By digital signature** using smart card, USB token or remote signature which allow the owner to sign general documents by means of a signature software or a Remote Signature web portal made available by the Auditor. Those who have a Digital Signature smart card or USB token shall verify that they are compatible with the Digital Signature system integrated in the system server. If so, the owner may sign the application directly in the system server (e.g. ConFirma);



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- **Those who do not have compatible digital signature devices and the Remote Digital Signature Owners** who may access a web portal for signing general documents shall save in their own PC the .pdf file generated by the system and, without modifying it, digitally sign it in CAdES format. A .p7m file will be generated, which shall be uploaded again to the system. Any editing to the file before signing with the Digital Signature shall interfere with the automatic check of correspondence between the content of such a document and the original, and this will bring to the application exclusion;
- **If none of the above-mentioned options can be used** candidates shall save in their own PC the .pdf file generated by the system and, without modifying it, print and sign it with full original signature in the last page of the printed document. A scanned .pdf copy of such a document shall be produced and the file thus obtained shall be uploaded to the system. It is not necessary to sign the application if the candidate logs in using the SPID or CIE credentials.

3. In the application to participate, filled in all its parts by carefully following the telematic model, candidates must declare under his/her own responsibility:

- a) name and surname, date and place of birth, residence and an e-mail and/or PEC address for notifications;
- b) the citizenship held (Italians not belonging to the Republic are equated to citizens of the Italian State);
- c) the possession of the requirements of Article 2 above;
- d) that they have not been convicted of a crime nor are they aware of being subject to criminal proceedings or of any pending criminal proceedings against them;
- e) that they do not currently hold a position as first or second tier university professors or as open-ended contract Researchers, and have not held such positions in the past either, even if terminated, and have not benefited from contracts under art. 24 of Law 240/2010;
- f) that they have not been dismissed or relieved from office with a Public Administration for consistently poor performance, or that they have not been dismissed from a civil service job as provided in Art. 127, Letter d) of D.P.R. 10 January 1957, n. 3;
- g) that they are not related, up to the fourth degree, to professors belonging to the recruiting Department or the Structure proposing the activation of the contract, or with the Rector, General Director, any member of the Board of Directors;
- h) that they are physically fit for employment.

4. Italian candidates shall also state under their own responsibility:

- a) which electoral college they are registered in (indicating the municipality) and any reasons for lack of registration or deletion;
- b) their current situation with regard to military service (for those born up to 1985).

In compliance with Articles 4 and 20 of Law 104/1992, candidates with disabilities must apply for any necessary aid, producing appropriate certification issued by the relevant public health facility.

5. The University Administration declines all responsibility for unreceived notifications due to the candidate's failure in providing a correct address, e-mail and/or PEC address or not notifying the University in due time of any change in the address given in the application nor for any misunderstandings not attributable to the fault of the Administration itself, or due to third parties, unforeseeable events or force majeure.

6. The applicants must attach the following documents to the application by uploading them to the appropriate section of the portal:



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- A *Curriculum vitae* listing their scientific and professional activities with **the indication of all titles considered useful** for the purposes of the procedure, dated and signed;
- A *Project proposal* related to the profile for which they intend to compete and listed in Attachments A, B, C, D, E and F to the present Announcement;
- A numbered list of publications considered useful for the selection in compliance with the maximum number established in Attachments A, B, C, D, E and F to the present Announcement;
- A photocopy of a valid identity document.

All documents must be attached in PDF format. Each attachment should not exceed the limit of 30 MB.

7. For any technical problems candidates may contact technical support through the link available at the bottom of the following page: <https://pica.cineca.it/univaq.it>. In any case, it should be noted that technical support for the submission of applications is guaranteed only during office hours.

Art. 4

Application for admission of foreign applicants

1. Foreign candidates, in addition to what is stated in the preceding article and in the documents available in the telematic procedure, must declare in the application that they are in possession of their civil and political rights in their country or, supply the reasons for lack thereof;

The qualifications that EU citizens intend to submit must be reported in the curriculum vitae in the same manner as indicated in Article 3 above.

2. Non-EU citizens with a regular residence permit may use the Personal Declarations of Certification in accordance with the procedure laid down for EU citizens whenever it is necessary to provide proof of status, facts or personal qualities certifiable or confirmable by Italian public agencies or if the production of self-executed certificates takes place under international agreements between Italy and the applicant's country of origin.

Non-EU citizens who do not hold a regular residence permit must indicate in their curriculum the qualifications they hold that they intend to submit for the Examining Board's evaluation. They must also upload to the PICA platform, the titles, certificates and documents, proving what is declared in the curriculum vitae, issued by the competent authorities of the State of which they are nationals or of non-EU countries, legalized by the competent Italian consular authorities or by an official translator.

Pursuant to Art. 7, Paragraph 3 of the University Regulations for the awarding of research contracts in accordance with Art. 22, Italian Law n. 240, 30 December, 2010, the Examining Board shall assess the equivalency of the qualification to be obtained abroad for the procedure.

Art. 5

Application Submission Procedure, Deadline and Publications

1. Scientific publications deemed useful for evaluation purposes must be attached to the application, in the maximum number as indicated in Attachments A, B, C, D, E and F to this notice.

The files containing the publications, attached in PDF format, shall not exceed the limit of 30 MB.

Publications contained in the list attached but not submitted shall not be assessed.

Works published in Italy will be assessed if they comply with legal standards and are pursuant to Leg. Decree n. 660/1945 as amended by Italian Law 106/2004 and Presidential Decree n. 252/2006.

This requires certification to be provided with the application or a personal declaration pursuant to



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Presidential Decree n. 445/2000; for works published abroad the date and place of publication must be indicated.

Publications written in a foreign language must be accompanied by a certified translation into Italian by official translator or consulate/embassy. The translation process is not required for publications written in French, English, German and Spanish.

2. Qualifications that candidates intend to submit must be held by applicants within the deadline for application submission and must be submitted in the manner specified in Article 3.

Candidates shall not be able to modify their applications or submit additional titles and publications after the indicated deadline.

Art. 6

Exclusion from the Selection Procedure

1. Candidates are conditionally admitted to the selection procedure; therefore, applications deemed as lacking the required elements specified in the selection announcement or not in compliance with what specified in Article 3 or in all other cases provided for in the present announcement shall be excluded by Rector's Decree.

2. Candidates shall be notified of the said exclusion by the certified e-mail (PEC) indicated in the application and registered to the candidate. If a certified e-mail (PEC) is not indicated, the University Administration shall notify the candidate to the selected mailing address included in the application, declining all responsibility for any non-deliveries.

3. In any case the following shall be cause for exclusion:

- not including official declaration of equivalency of the Ph.D. obtained abroad issued by the relevant authorities of the foreign country or a copy of the application for obtaining such a declaration;
- not including a copy of a valid identification document.

Art. 7

Nomination of the Examining Board and Time Limits of the Selection Procedure

1. The Examining Board is appointed by a Rector's Decree, taking into account the provisions of Article 6 of the University Regulations for the awarding of research contracts, pursuant to Article 22, Law n. 240, 30 December 2010.

The Rector's Decree appointing the Examining Board shall be published on the University's Albo Ufficiale and on the University website.

2. From the date the Rector's Decree nominating the Examining Board is published candidates have **10 (ten) days to state their opposition** to any of the components of the Board. After this period, and anyhow after the Board's taking office, no instances may be presented.

3. The Board is to conclude all necessary actions within thirty (30) days from the date of publication of the Rector's Decree nominating its members, drawing up a merit ranking. The Rector may extend the deadline only once and for no more than thirty (30) days in the case of documented reasons brought forth by the President of the Board.

If all procedures are not concluded even within the extended deadline, the Rector shall proceed to the substitution of the Board members.

Art. 8

Renouncing Participation



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1. Candidates wishing to renounce participation in the selection procedure are required to write to the Rector to declare their intentions, including in their letter a photocopy of a valid identity document.

The waiver petition may be submitted by certified e-mail (PEC) to the address protocollo@pec.univaq.it, indicating the call for applications code in the subject line.

If the candidate does not show up on the date scheduled for their interview, this shall be considered final renunciation to the selection procedure.

Art. 9

Method of carrying out the selection

1. The Examining Board must, in the following order:

- establish the criteria to assess qualifications and interview;
- assess the admission requirements provided for by Art. 2 above;
- interview the candidate and assess the qualifications as provided for in Art. 8 of the University Regulations for the awarding of research contracts, pursuant to Art. 22, Law n. 240, 30 December 2010;

2. Candidates are assessed comparatively based on the following criteria (Art. 8 of the University Regulations):

- quality, originality and innovativeness of the project proposal, with reference to the research programme object of the selection (maximum score: 30);
- connection and relevance of previous research activities as well as work experience, if any, in relation to the content of the research programme object of selection (maximum score: 10);
- relevance of the publications submitted to the research programme object of the selection (maximum score: 10);
- interview aimed at assessing the candidate's suitability for carrying out the research activities object of the contract and the implementation of the project proposal submitted as well as the candidate's knowledge of English and/or other languages relevant to the research (maximum score: 50).

For each candidate, the Examining Board must analytically report in the minutes an overall motivated judgement, the qualifications assessed and the score awarded. The result of the evaluation of qualifications shall be made public on the relevant page of the university website at least ten (10) days before the interview.

3. The interview **shall be carried out using telematic technology** in analogy with the University's Regulations concerning the procedures for carrying out the interviews using telematic technology in selection procedures for fixed-term researchers as well as the interviews for testing language skills in selection procedures for First and Second Tier professors established by the Rector's Decree n. 198-2023, 3 March, 2023 and is aimed at assessing the candidate's suitability for carrying out the research activities object of the contract and the implementation of the project proposal submitted as well as the candidate's knowledge of English and/or other languages relevant to the research.

4. After the publication of the minutes n. 2 of the Examining Board, indicating the list of candidates admitted, the candidate shall be invited via e-mail by the Settore Concorsi e Selezioni Office to fill in and send to the address contrattidiricerca@univaq.it the statement indicating any information to be provided for in order to access the interview as well as to be available at the address communicated in advance. The candidate's failing to submit the statement above, to stay connected, to be unavailable on the appointed day or time, or to produce a valid identification document shall



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be cause for exclusion from the selection procedure. The University Administration declines any responsibility for the possibility that technical reasons may prevent the smooth conduct of the oral test.

For the purpose of identification and under penalty of exclusion from the selection procedure, each candidate is required, before the interview begins, to identify himself/herself by showing a valid identification document.

On the basis of the total scores awarded (sum of the qualifications assessment plus the grade obtained at the interview) **and considering the minimum score of 70 points out of 100** to be included in the merit list referred to in Article 1 of this announcement, the Examining Board shall draw up the merit list and identify the winner. In case of equality, preference shall be given to the youngest candidate.

Art. 10

Determining Validity of Proceedings

1. The formal validity of the proceedings is established by a Rector's Decree, which shall be published on the University's Albo Ufficiale and on the University website. The merit ranking may be used only in case of forfeiture or renouncing taking service from the winner of the selection procedure.

The date of publication of the merit ranking represents official notification and from that date the terms to file a complaint shall run.

If the Rector finds any irregularities in the proceedings, he/she may make a motivated request to the Board to obtain rectification assigning at the same time a deadline.

2. The Rector's Decree is immediately passed on to the Settore Personale Docente e Ricercatori Office and to the Department that has requested the selection procedure. The candidate selected shall also be notified.

Art. 11

Drawing-up of contract, incompatibilities, ways of carrying out the activities

1. A two-year, fixed-term subordinate employment contract, "Research Contract," shall be underwritten by the University and the winner, pursuant to Art. 22, Law n. 240/2010, to weigh on the funds indicated in the introduction to this announcement.

2. The date of taking service of the research contract holder is established by a resolution of the Board of Directors and the related contract shall be underwritten within thirty (30) days following the communication of approval of taking service.

3. Research contracts are incompatible with:

- a) any other part-time or fixed-term subordinate employment contract at public or private bodies;
- b) holding research contracts also in other Universities or public research bodies;
- c) attending degree courses, specialist or master's degree courses, Ph.D. or specialization courses in Italy or abroad, and involves placement on unpaid leave for the public administration employee.

4. The research contract cannot be accumulated with any other scholarship or research grant from national or foreign institutions, except those exclusively for the international mobility for research purposes.

5. Notwithstanding the foregoing, the research contract holder cannot carry out activities that may determine a situation of conflict of interest with the activities of the University or that do not allow the smooth running of the research activities.



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6. The University reserves the right not to proceed with the conclusion of the research contract in the event contingencies of a regulatory, organizational or financial nature should arise that prevent the stipulation. Holding the contract does not give any rights to be hired by the University nor may be counted for the purposes of Art. 20, Leg. Decree n. 75, 25 May 2017.

7. The contract holder is entitled, for the entire duration of the relationship, to a comprehensive gross annual salary as referred to in Art. 4, paragraph 4, letter i) of the Regulations concerning the awarding of research contracts pursuant to Art. 22, Italian Law 240/2010.

The contract holder shall carry out his/her activities concerning the above-mentioned research project at the Department indicated in Attachments A, B, C, D, E and F in coordination with the Scientific Coordinator or with the Director of the relevant Department. The Contractor must submit a specific scientific report yearly and at the end of the contract.

Art. 12

Termination of the Contract

1. The termination of the employment relationship is determined, in addition to occurred forfeiture, by the expiry of the time limit or the withdrawal by one of the parties and by any other cause for termination provided by law.
2. Each contract holder may withdraw from the contract before the expiry of the time limit, provided one of the reasons occur that, pursuant to Art. 2119 of the Civil Code, do not allow the continuation, even temporarily, of the employment relationship, or due to supervening impossibility.
3. It is resolutive condition of the contract, without prior notice, the cancellation of the recruiting procedure.
4. It represents just cause to withdraw from the contract failure to submit the technical-scientific report as well as failure of approval by the Scientific Coordinator of the research.

Art. 13

Personal Data

1. The processing of candidates' personal data is disciplined by Leg. Decree n. 196, 30 June 2003 and UE Regulation n. 679/2016. Personal data supplied by the candidates in the application form shall be collected by the offices of the University and processed for the purposes of the procedure and for the management of relations ensuing therefrom.
The provision of said information is mandatory, under penalty of exclusion.
2. Candidates are entitled to exercise the rights provided in the Legislative Decree mentioned above, including the right to access the data concerning them, the right to rectify, update, complete or erase erroneous or incomplete data or data collected in a manner that is contrary to law, and to object to processing for legitimate reasons.
3. The Controller of the processed data is the University of L'Aquila with registered office in Piazza Santa Margherita, n. 2, 67100 - L'Aquila. The designated Data Protection Officer can be contacted at the following mail address: rpd@strutture.univaq.it.

Art. 14

Head of the Selection Procedure

1. The person in charge for the process of this selection procedure is dr. Loredana Taccone, serving in the Settore Concorsi e Selezioni Office of the University of L'Aquila, e-mail: conc@strutture.univaq.it.



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Any clarifications regarding this call for applications can be directed to the following e-mail address: conc@strutture.univaq.it; for telephone contacts see bottom of the first page of this announcement.

Art. 15

Disclosure and Final Rules

1. This announcement, as well as the decree concerning the nomination of the Examining Board, the decree concerning the candidates admitted, the proceedings of the Examining Board, properly deprived of sensitive data, the approval of the proceedings are made available to the public on the University's Albo Ufficiale at <https://www.univaq.it/section.php?id=1391> and posted on the relevant page of the university website at <https://www.univaq.it/section.php?id=1532>. Notice of this call in Italian and in English shall also be published on the Ministry of Education, University and Research website at <https://bandi.miur.it/> and in the portal of the European Union at: <http://ec.europa.eu/euraxess>.
2. For all matters not provided for in this call for applications, the current University Regulations for the awarding of research contracts, the relevant legislation in force, insofar as compatible, shall apply. The same call constitutes *lex specialis* of the selection, therefore participation in the same implies implicit acceptance, without reservation, of all the provisions contained therein.

L'Aquila,

The Rector
Prof. Fabio Graziosi

ATTACHMENTS: A, B, C, D, E and F



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ATTACHMENT A

N. of positions	1
Research programme	Research Programme "SHEEP: Symmetry-broken HETerostructurEs for Photovoltaic applications", PRIN2022-PNRR (CUP E53D23018380001)
Type of contract	Fixed-term research contract, pursuant to Article 22, Law n. 240/2010, as amended by Leg. Decree n. 36, April 30, 2022, converted, with amendments, by Law n. 79, June 29, 2022.
Period	24 months
Place of work	Department of Physical and Chemical Sciences
Research Coordinator	Prof. Federico Bisti
Scientific Disciplinary Group	02/PHYS-03 - Experimental Physics of the Matter and Applications
Academic Discipline	PHYS-03/A - Experimental Physics of the Matter and Applications
Description of the research project in which the post doc researcher shall be involved	<p>The aim of the project is increasing the efficiency of photovoltaic devices beyond the Shockley-Queisser limit, typical of the p-n junction in silicon photovoltaic cells. The project intends to get around such a limit exploiting the (BVPE) Bulk Photovoltaic Effect which may be engineered in specific heterostructures of two-dimensional materials. Such an effect occurs whenever the loading centre in the actual space of the electronic valence bands differs from that of the conduction bands. The result is a photocurrent resulting from the spatial displacement of electrons and holes during transitions induced by light. This project is based on a combined theoretical and experimental approach in which the engineering of heterostructures shall be carried out by means of computational codes based on the density-functional theory, in collaboration with the theoretical CNR-SPIN group of L'Aquila. The interfaces shall be manufactured in the physics of the matter laboratories of the Department of Physical and Chemical Sciences by means of the dry transfer techniques. The structures obtained shall be characterized by means of appropriate experimental surface techniques such as photoemission, Raman, photoluminescence and scanning probe microscopy. Finally, the photovoltaic and photoresistor properties shall be verified through the implementation of heterostructures on appropriate fully molded circuits.</p>
Profile of the researcher to be hired	Proven experience in the manufacturing of van der Waals heterostructures by means of dry transfer techniques, and



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	<p>in the characterization techniques based on photoemission, Raman effect, photoluminescence and scanning probe microscopy. A solid research experience at international level, supported by high quality publications and ability to collaborate with international research groups are required. Experience on first principles calculations based on the density-functional theory as well as on the manufacturing techniques of microelectronic devices is to be regarded as an advantage.</p>
Foreign language requisite	English
Admission Requisites	Requisites as provided for by Art. 22, Law n. 240, 30 December 2010.
Assessment criteria (maximum score: 100)	<p>Applicants are comparatively assessed on the basis of the following criteria:</p> <ul style="list-style-type: none">a) quality, originality and innovativeness of the project proposal, with reference to the research programme object of the selection (maximum score: 30);b) connection and relevance of previous research activities as well as work experience, if any, in relation to the content of the research programme object of selection (maximum score: 10);c) relevance of the publications submitted to the research programme object of the selection (maximum score: 10);d) interview aimed at assessing the candidate's suitability for carrying out the research activities object of the contract and the implementation of the project proposal submitted as well as the candidate's knowledge of English and/or other languages relevant to the research (maximum score: 50).
Maximum number of publications	5
Remuneration	The remuneration payable for the total period of the contract (24 months) is equal to € 107.000,00, included charges to be borne by the administration and by the subject concerned provided by law.
Type of funding	The cost of the contract shall weigh on the funds of the project PRIN2022-PNRR-SHEEP and the project DM 737/2021 allocated to the Department of Physical and Chemical Sciences (DSFC).
CUP	E53D23018380001 (PRIN2022-PNRR-SHEEP) and E19J21015170001 (DM 737/2021)
Economic coverage of the cost of the contract	Budget item: 2025 (Project reports attached) UGOV Project Code: PRIN2022PNRRBISTI



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	UGOV Project Code: DM737DSFC
Useful information for submitting the project proposal by applicants	The project proposal submitted by the candidate must be articulated in: a) Project abstract; b) State of the art (appropriately referenced); c) Objectives (with clear reference to the methodologies proposed); d) Expected results; e) Impact and relevance of the research proposed. The candidate's project proposal must have a maximum length of 10.000 characters (spaces excluded).



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ATTACHMENT B

N. of positions	1
Research programme	Green design and redesign of systems with microservices architectures.
Type of contract	Fixed-term research contract, pursuant to Article 22, Law n. 240/2010, as amended by Leg. Decree n. 36, April 30, 2022, converted, with amendments, by Law n. 79, June 29, 2022.
Period	24 months
Place of work	Department of Information Engineering, Computer Science and Mathematics - DISIM
Research Coordinator	Prof. Henry Muccini
Scientific Disciplinary Group	01/INFO-01 - Informatics
Academic Discipline	INFO-01/A - Informatics
Description of the research project in which the post doc researcher shall be involved	<p>Based on a study carried out by the multinational consulting company Gartner, 74% of organizations develop software systems by means of microservices, and 23% plan to adopt them [1]. These systems appear to be particularly scalable and maintainable though at the same time potentially energy-intensive, demanding the extensive use of data centres whose computing power is increasingly limited compared to the computational demand in the cloud. In the light of the EU legislation concerning the corporate sustainability reporting [2], action has to be taken to reduce the energy consumption of companies in Europe. Such regulation also applies to software companies, considering that modern software applications will represent 3-4% of the overall electricity consumption by 2030 [3].</p> <p>The aim of this research contract is to analyze in detail design and software development methods, design patterns, and industrial practices in use to minimize the energy used by microservices-developed software systems.</p> <p>This research therefore aims to:</p> <ul style="list-style-type: none">- identify, document and synthesize the practices adopted by ICT (Information and Communication Technologies) companies in the design and development of microservices-developed software systems;- analyze systematically the state-of-the-art in the design of sustainable microservices systems;



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	<ul style="list-style-type: none">- elicit and evaluate sustainable patterns providing strategies to reduce the software environmental impact, improving efficiency and durability;- use generative methods for the automatic analysis of anti-pattern sustainability, providing strategies to remove the tech debt associated to them;- validate the results obtained by means of in vitro experimentations and on open source systems;- define methodologies that support the migration to green software systems to reduce technical and economic impacts. <p>The results shall guide the design of sustainable microservices applications and the migration from legacy systems, promoting the development of more accountable and scalable software.</p> <p>This research shall contribute to supplement sustainability in software development practices, providing concrete tools for designing more efficient and resilient software architectures.</p> <p>[1] Gartner, Inc. Microservices Architecture: Have Engineering Organizations Found Success?, Gartner PeerCommunity, 2023. Available: https://tinyurl.com/bdetfjwz</p> <p>[2] European Commission. "Corporate Sustainability Reporting. European Commission", 2025, finance.ec.europa.eu/capital-markets-union-and-financialmarkets/company-reporting-and-auditing/companyreporting/corporate-sustainability-reporting</p> <p>[3] Sophia Chen. How much energy will AI really consume? The good, the bad, and the unknown. In Nature, March 2025.</p>
Profile of the researcher to be hired	Researcher in the field of Software Engineering with research experience in software systems migration issues, "quality-driven" strategies for design and redesign of microservices systems, sustainable software analysis.
Foreign language requisite	English
Admission Requisites	Requisites as provided for by Art. 22, Law n. 240, 30 December 2010.
Assessment criteria (maximum score: 100)	Applicants are comparatively assessed on the basis of the following criteria:



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	<p>a) quality, originality and innovativeness of the project proposal, with reference to the research programme object of the selection;</p> <p>b) connection and relevance of previous research activities as well as work experience, if any, in relation to the content of the research programme object of selection;</p> <p>c) relevance of the publications submitted to the research programme object of the selection;</p> <p>d) interview aimed at assessing the candidate's suitability for carrying out the research activities object of the contract and the implementation of the project proposal submitted as well as the candidate's knowledge of English and/or other languages relevant to the research.</p>
Maximum number of publications	2
Remuneration	The remuneration payable for the total period of the contract (24 months) is equal to € 101.494,86, included charges to be borne by the administration and by the subject concerned provided by law.
Type of funding	<ul style="list-style-type: none">• 4 monthly payments on the funds of the project DM_737_DM737.PNRR_DISIM for € 16.915,81, deadline 30 June 2026;• 20 monthly payments on the funds of the project 04UE.MOSAICO for € 84.579,05, deadline 31 December 2029;
CUP	DM737 CUP: E19J21015170001 UE.MOSAICO CUP: E13C24003670006
Useful information for submitting the project proposal by applicants	<p>The project proposal submitted by the candidate must be articulated in:</p> <ul style="list-style-type: none">a) Project abstract;b) State of the art (appropriately referenced);c) Objectives (with clear reference to the methodologies proposed);d) Expected results;e) Impact and relevance of the research proposed. <p>The candidate's project proposal must have a maximum length of 10.000 characters (spaces excluded).</p>



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ATTACHMENT C

N. of positions	2
Research programme	Engineering autonomous systems for humanity
Type of contract	Fixed-term research contract, pursuant to Article 22, Law n. 240/2010, as amended by Leg. Decree n. 36, April 30, 2022, converted, with amendments, by Law n. 79, June 29, 2022.
Period	24 months
Place of work	Department of Information Engineering, Computer Science and Mathematics - DISIM
Research Coordinator	Prof. Massimo Tivoli and Prof. Marco Autili
Scientific Disciplinary Group	01/INFO-01 - Informatics
Academic Discipline	INFO-01/A - Informatics
Description of the research project in which the post doc researcher shall be involved	<p>The growing attention towards AI and the risks involved for people, society and environment [1] is made clear in the spreading of guidelines and recommendations [2,3,4], laws and regulations [4] as well as standards (over 25 new standards in the last years, besides the updating of those already existing [6]) that regulate the field and fill the lack of best practices for the governance, the management and quality of AI-based autonomous systems [7].</p> <p>Digital systems, from company processes to public services in smart cities up to autonomous robots and AI systems, are by now integral part of society. They automate houses, transportation, work, city management and critical infrastructures, having a deep and growing impact on daily life.</p> <p>At the same time, autonomous and smart systems may make decisions without human supervision, operating in dynamic and socially sensitive contexts [8]. However, as it is clear from the scientific contributions listed below, today's technologies still face critical issues:</p> <ul style="list-style-type: none">• ethics and human values often not integrated in the decision processes of the autonomous systems, with consequent lack of confidence by citizens, industries and regulators;• lack of a real integration of ethical considerations in the software life-cycle development: many works stop at the requirements phase, without methods to implement their operation at the design, implementation, validation and deployment phases;• shortage of reliable software architectures and engineering methods for ethical and transparent autonomous systems that interact with people, objects and other autonomous agents;



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- increasing complexity especially for AI-based autonomous and distributed systems;
- need for scalable and accessible solutions for managing complexity, such as digital twins, low-code, smart automation and auto-negotiation of decision-making processes;
- emerging application domains (smart cities, digital society, collaborative robots, assistive robots) that require ethical, transparent, explainable and able to coordinate and cooperate systems.

The two contracts shall take a line of research oriented to the development of digital technologies and autonomous systems that are reliable, transparent and ethical. The project's two main strategic objectives are:

1. To design methods and tools that make autonomous systems more transparent, reliable and in line with the users' values, with a particular attention to collaborative robots, assistive robots and digital services for society and smart cities;
2. To integrate ethical, social, environmental and transparency considerations directly in the software development processes, so as to reduce unexpected behaviours with respect for the users' rights and preferences, avoiding discriminations, ensuring plurality and openness.

The main action points the Researcher shall focus on are:

- Analysis of the ethical and social impact of autonomous and digital systems.
- Development of models, guidelines and tools to integrate ethical aspects in the software design and development processes.
- Studies and experimentations on real application cases such as collaborative and assistive robots, autonomous decision-making systems and digital services for smart cities, rescue missions.
- Definition of software architecture able to support ethical, transparent and explainable behaviours.
- Collaboration with multidisciplinary (informatics, robotics, law, psychology, social sciences and humanities) research groups.
- Contribution to the scientific production, to writing projects and spreading the results within the research and industrial community.

As far as the expected impact is concerned, the research line results shall have a strong strategic value as they will allow to:

- Improve the quality and transparency of autonomous systems.
- Promote people's confidence in smart technologies.
- Support enterprises and institutions in the development of more accountable, sustainable and ethical digital solutions.



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	<ul style="list-style-type: none">• Contribute to the development of an advanced research ecosystem on software engineering, robotics and ethical systems. <p>This research line represents a key step towards the building of advanced as well as transparent and accountable technologies to benefit society and future generations.</p> <p>[1] M. Autili, M. De Sanctis, P. Inverardi, P. Pelliccione, Engineering Digital Systems for Humanity: a Research Roadmap, ACM Transaction on Software Engineering and Methodology (2025). DOI:10.1145/3712006. URL https://doi.org/10.1145/3712006</p> <p>[2] UNESCO, Recommendation on the ethics of artificial intelligence (2022). URL https://unesdoc.unesco.org/ark:/48223/pf0000381137</p> <p>[3] United States Government, Blueprint for an AI Bill of Rights Making Automated Systems Work for the American People (2022). URL https://bidenwhitehouse.archives.gov/ostp/ai-bill-of-rights/</p> <p>[4] OECD. AI Policy Observatory, OECD AI Principles overview (2019 updated May 2024). URL https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449</p> <p>[5] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on Artificial Intelligence (AI act) (June 2024). URL https://eur-lex.europa.eu/eli/reg/2024/1689/oj</p> <p>[6] D. Natale, Extensions of ISO/IEC 25000 Quality Models to the Context of Artificial Intelligence, in: Proceedings IWESQ 2022, 4th International Workshop on Experience with SQuARE series and its Future Direction, December 6th 2022, Tokyo (Virtual), Japan, CEUR-WS.org, 2022. URL https://ceur-ws.org/Vol-3356/paper-02.pdf</p> <p>[7] J. Oviedo, M. Rodríguez, A. Trenta, D. Cannas, D. Natale, M. Piattini, ISO/IEC Quality Standards for AI Engineering, Computer Science Review 54 (2024) 100681. doi: 10.1016/j.cosrev.2024.100681. URL https://www.sciencedirect.com/science/article/pii/S1574013724000650</p> <p>[8] P. Inverardi, M. Palmiero, P. Pelliccione, M. Tivoli: Ethical-aware autonomous systems from a social psychological lens. CoPDA@AVI 2022: 43-48. URL https://ceur-ws.org/Vol-3136/paper-9.pdf</p>
Profile of the researcher to be hired	Researcher in the field of Software Engineering with research experience in Software Architecture, Robot Collaboration, Assistive Robot, Ethical and Autonomous Systems issues.
Foreign language requisite	English
Admission Requisites	Requisites as provided for by Art. 22, Law n. 240, 30 December 2010.
Assessment criteria	Applicants are comparatively assessed on the basis of the following criteria:



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(maximum score: 100)	<p>a) quality, originality and innovativeness of the project proposal, with reference to the research programme object of the selection;</p> <p>b) connection and relevance of previous research activities as well as work experience, if any, in relation to the content of the research programme object of selection;</p> <p>c) relevance of the publications submitted to the research programme object of the selection;</p> <p>d) interview aimed at assessing the candidate's suitability for carrying out the research activities object of the contract and the implementation of the project proposal submitted as well as the candidate's knowledge of English and/or other languages relevant to the research.</p>
Maximum number of publications	3
Remuneration	The remuneration payable for the total period of the contract (24 months) is equal to € 108.782,1, included charges to be borne by the administration and by the subject concerned provided by law.
Type of funding	Project HPC_BIG_DATA_QUANTUM Scientific Coordinator: Prof. Massimo Tivoli
Economic coverage of the cost of the contract	University Project: HPC_BIG_DATA_QUANTUM - Research Coordinator: Prof. Massimo Tivoli, deadline 31 December 2028
CUP	E13C22001000006
Useful information for submitting the project proposal by applicants	<p>The project proposal submitted by the candidate must be articulated in:</p> <p>a) Project abstract;</p> <p>b) State of the art (appropriately referenced);</p> <p>c) Objectives (with clear reference to the methodologies proposed);</p> <p>d) Expected results;</p> <p>e) Impact and relevance of the research proposed.</p> <p>The candidate's project proposal must have a maximum length of 10.000 characters (spaces excluded).</p>



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ATTACHMENT D

N. of positions	1
Research programme	Implementation of the research lines of the projects: Project RE-KAR-PCB - Project partner K.A. Rasmussen – Norway. Project: Weeko Factory 2.0 to weigh on the funds for the sustainable growth (f.c.s.). Innovation agreements: D.M. 31 December 2021 and D.D. 14 November 2022, D.M. 11 May 2023 and D.D. 11 August 2023. Project N. Pos. 327 N. MISE F/350327/01/X60, Research, Innovation and Competitiveness National Programme (PN) for green and digital transition 2021-2027 - PN RIC 2021-27.
Type of contract	Fixed-term research contract, pursuant to Article 22, Law n. 240/2010, as amended by Leg. Decree n. 36, April 30, 2022, converted, with amendments, by Law n. 79, June 29, 2022.
Period	24 months
Place of work	Department of Industrial and Information Engineering and Economics (DIIIE)
Research Coordinator	Prof. Francesco Vegliò
Scientific Disciplinary Group	09/ICHI-01 - Systems, Methods and Technologies of Chemical and Process Engineering
Academic Discipline	ICHI-01/C - Analysis, Design and Control of Chemical Processes
Description of the research project in which the post doc researcher shall be involved	<p>The aim of the project is to develop a process of full recovery of base and precious metals from multifunction printers and electronic cards in general.</p> <p>A description of the activities follows:</p> <p>M1-M12.</p> <ul style="list-style-type: none"> – Card milling tests to prepare samples to be submitted to leaching. – Thermal tests for muffle pretreatment, in order to concentrate metals in the carbon residues and remove the resins. – Leaching tests with several different acids to study and optimize parameters such as concentration and types of acids, temperature, solid-liquid ratio, reaction time. – Kinetic analysis of experimental data. <p>M12-M24.</p> <ul style="list-style-type: none"> – Metal recovery tests: the parameters for the removal of impurities and the final recovery of the metals of interest shall be optimized. Processes such as selective precipitations, liquid-liquid extraction, adsorption on resins, electroplating shall be studied. The aim is to increase the final extraction yield as well as the purity of the products in the processes selected. – Materials and energy balances for the final optimized processes.



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	<ul style="list-style-type: none"> – Technical-economic analysis for a plant with a capacity to be defined (tonnes/cards per year). Sensitivity analysis with calculation of profitability indexes such as ROI, NPV, payback time, IRR.
Profile of the researcher to be hired	<p>The Researcher must have gained experience in the field of the extraction and recovery of metals from minerals, industrial waste and RAEE, with mastery of hydrometallurgical techniques such as liquid-liquid extraction, adsorption on resins, activated carbon, zeolites, process water and wastewater treatment. Knowledge of the ICP spectrometric techniques for measuring metals in solution is considered an additional requirement. Experience in the field of process simulation and definition of materials and energy balances in complex process schemes is also required.</p>
Foreign language requisite	English
Admission Requisites	Requisites as provided for by Art. 22, Law n. 240, 30 December 2010.
Assessment criteria (maximum score: 100)	<p>Applicants are comparatively assessed on the basis of the following criteria:</p> <ul style="list-style-type: none"> a) quality, originality and innovativeness of the project proposal, with reference to the research programme object of the selection (maximum score: 30); b) connection and relevance of previous research activities as well as work experience, if any, in relation to the content of the research programme object of selection (maximum score: 10); c) relevance of the publications submitted to the research programme object of the selection (maximum score: 10); a) interview aimed at assessing the candidate's suitability for carrying out the research activities object of the contract and the implementation of the project proposal submitted as well as the candidate's knowledge of English and/or other languages relevant to the research (maximum score: 50).
Maximum number of publications	5
Remuneration	The remuneration payable for the total period of the contract (24 months) is equal to € 101.494,86, included charges to be borne by the administration and by the subject concerned provided by law.
Type of funding	<p>WEEKO - PRJECT N. F/350327/05/X60 - CUP: B19J24001110005 - COR: 22534556 U-GOV code 05EV.LAMBIASEWEEKO - Scientific Coordinator: Prof. Francesco Lambiase (Amount: € 67.633,24) Project RE-KAR-PCB - Project partner K.A. Rasmussen - Norway, CUP E13C25002060002; U-GOV code 05EV.VEGLIOREKARPCB Scientific Coordinator: Prof. Francesco Vegliò (Amount: € 42.336,76).</p>
CUP	<p>05EV.LAMBIASEWEEKO B19J24001110005 05EV.VEGLIOREKARPCB E13C25002060002</p>
Economic coverage of the cost of the contract	<p>Budget item: UA.ATE.DIIIE U-GOV Project Code: 05EV.LAMBIASEWEEKO</p>



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	U-GOV Project Code: 05EV.VEGLIOREKARPCB
Application deadline	within 20 days following the day of the announcement publication
Useful information for submitting the project proposal by applicants	The project proposal must have a maximum length of 6.000 characters (spaces excluded).



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ATTACHMENT E

N. of positions	1
Research programme	LIFE SIRCULAR – Scientific Coordinator Dr. Ing. Nicolò Maria Ippolito
Type of contract	Fixed-term research contract, pursuant to Article 22, Law n. 240/2010, as amended by Leg. Decree n. 36, April 30, 2022, converted, with amendments, by Law n. 79, June 29, 2022.
Period	24 months
Place of work	Department of Industrial and Information Engineering and Economics (DIIIE)
Research Coordinator	Prof. Francesco Vegliò
Scientific Disciplinary Group	09/ICHI-01 - Systems, Methods and Technologies of Chemical and Process Engineering
Academic Discipline	ICHI-01/C - Analysis, Design and Control of Chemical Processes
Profile of the researcher to be hired	<p>The Researcher must have gained experience in the field of the extraction and recovery of metals from minerals, industrial waste and RAEE, with mastery of hydrometallurgical techniques such as liquid-liquid extraction, adsorption on resins, activated carbon, zeolites, process water and wastewater treatment. Knowledge of the ICP spectrometric techniques for measuring metals in solution is considered an additional requirement.</p> <p>Experience in the field of process simulation and definition of materials and energy balances in complex process schemes is also required.</p>
Description of the research project in which the post doc researcher shall be involved	<p>The aim of the project is to develop a process of full recovery of base and precious metals from photovoltaic panels at the end of life. A description of the activities follows:</p> <p>M1-M12.</p> <ul style="list-style-type: none">- Crushing and milling tests of components coming from the dismantling of photovoltaic panels at the end of life to be submitted to leaching.- Thermal tests for muffle pretreatment, in order to concentrate metals in the carbon residues and remove the resins.- Leaching tests with several different acids to study and optimize parameters such as concentration and types of acids, temperature, solid-liquid ratio, reaction time.- Kinetic analysis of experimental data. <p>M12-M24.</p> <ul style="list-style-type: none">- Metal recovery tests: the parameters for the removal of impurities and the final recovery of the metals of interest shall be optimized. Processes such as selective precipitations, liquid-liquid extraction, adsorption on resins, electroplating shall be studied. The aim is to increase the final extraction



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	<p>yield as well as the purity of the products in the processes selected.</p> <ul style="list-style-type: none">- Materials and energy balances for the final optimized processes.- Technical-economic analysis for a plant with a capacity to be defined (tonnes/cards per year). Sensitivity analysis with calculation of profitability indexes such as ROI, NPV, payback time, IRR.
Foreign language requisite	English
Admission Requisites	Requisites as provided for by Art. 22, Law n. 240, 30 December 2010.
Assessment criteria (maximum score: 100)	<p>Applicants are comparatively assessed on the basis of the following criteria:</p> <ul style="list-style-type: none">a) quality, originality and innovativeness of the project proposal, with reference to the research programme object of the selection maximum score: 30);b) connection and relevance of previous research activities as well as work experience, if any, in relation to the content of the research programme object of selection maximum score: 10);c) relevance of the publications submitted to the research programme object of the selection maximum score: 10);d) interview aimed at assessing the candidate's suitability for carrying out the research activities object of the contract and the implementation of the project proposal submitted as well as the candidate's knowledge of English and/or other languages relevant to the research maximum score: 50).
Maximum number of publications	5
Remuneration	The remuneration payable for the total period of the contract (24 months) is equal to € 101.494,86, included charges to be borne by the administration and by the subject concerned provided by law.
Type of funding	LIFE SIRCULAR - Scientific Coordinator: Dr. Ing. Nicolò Maria Ippolito
CUP	E13C25002000006
Economic coverage of the cost of the contract	Budget item: UA.ATE.DIIIE U-GOV Project code: Project 101213673 - LIFE24-ENV-IT-SIRCULAR U-GOV Project code 05UE.IPPOLITOSIRCULAR Scientific Coordinator Prof. Nicolò Maria Ippolito
Application deadline	within 20 days following the day of the announcement publication
Useful information for submitting the project proposal by applicants	The project proposal must have a maximum length of 6.000 characters (spaces excluded).



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ATTACHMENT F

N. of positions	1
Research programme	PNRR Mission 2 “Green revolution and ecological transition”, Component 2 “Renewable Energy, Hydrogen, Sustainable Network and Mobility”, Investment 3.5 “Hydrogen Research and Development” funded by European Union – NextGenerationEU.
Type of contract	Fixed-term research contract, pursuant to Article 22, Law n. 240/2010, as amended by Leg. Decree n. 36, April 30, 2022, converted, with amendments, by Law n. 79, June 29, 2022.
Period	24 months
Place of work	Department of Industrial and Information Engineering and Economics (DIIIE)
Research Coordinator	Prof. Andrea Di Carlo
Scientific Disciplinary Group	09/ICHI-01 - Systems, Methods and Technologies of Chemical and Process Engineering
Academic discipline	ICHI-01/B - Fundamentals of Chemical Engineering
Description of the research project in which the post doc researcher shall be involved	<p>The aim of the project is to integrate a biomass gasifier (pilot plant scale from 100 kWth) with a tar steam reforming catalytic system and with a hydrogen production system through a SOEC electrolyzer to obtain a clean and high-H₂ gas for the production of bio-SNG for transport uses and in conventional CHP or high-efficiency systems (Fuel Cell).</p> <p>A description of the activities follows:</p> <ol style="list-style-type: none"> Tests of commercial or experimental catalysts for tar steam reforming: <ul style="list-style-type: none"> in microreactors, using sample tar mixtures and H₂S in concentrations typical of the process; in bench-top scale gasification fluidized bed reactors. <p>Such activities shall allow to choose the optimal operating conditions, the most suitable catalysts and verify the performance with a real gasification gas.</p> <ol style="list-style-type: none"> Tests of the integrated pilot plant scale system: i) pilot gasifier from 100 kWth and tar steam reformer with sufficient amount of the selected catalysts; ii) SOEC system; iii) methanizer. Such tests shall be carried out for a high number of hours (up to 500) to prove the technical feasibility of the process in an (industrially) relevant environment. Process simulation to carry out mass and energy balances within the system.
Profile of the researcher to be hired	The Researcher must have gained experience in the field of biomass gasification, fluidized bed reactors and gas cleaning and conditioning warm catalytic systems for tar conversion and particulate removal. In particular, the Researcher must have experience in testing such systems on bench-top scale (laboratory)



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	and on pilot plant scale. Experience in the field of process simulation and fluidized bed reactors numerical simulation is also required.
Foreign language requisite	English
Admission Requisites	Requisites as provided for by Art. 22, Law n. 240, 30 December 2010.
Assessment criteria (maximum score: 100)	Applicants are comparatively assessed on the basis of the following criteria: a) quality, originality and innovativeness of the project proposal, with reference to the research programme object of the selection maximum score: 30); b) connection and relevance of previous research activities as well as work experience, if any, in relation to the content of the research programme object of selection maximum score: 10); c) relevance of the publications submitted to the research programme object of the selection maximum score: 10); a) interview aimed at assessing the candidate's suitability for carrying out the research activities object of the contract and the implementation of the project proposal submitted as well as the candidate's knowledge of English and/or other languages relevant to the research maximum score: 50).
Maximum number of publications	5
Remuneration	The remuneration payable for the total period of the contract (24 months) is equal to € 101.494,86, included charges to be borne by the administration and by the subject concerned provided by law.
Type of funding	The cost of the contract shall weigh on the funds of the projectERMES - Prog. n. RSH2A_000008-CUP: F57G25000120006, funded by PNRR Mission 2 "Green revolution and ecological transition", Component 2 "Renewable Energy, Hydrogen, Sustainable Network and Mobility", Investment 3.5 "Hydrogen Research and Development" funded by European Union - NextGenerationEU.
CUP	F57G25000120006 ERMES
Economic coverage of the cost of the contract	Budget Item: UA.ATE.DIIIE U-GOV Project code: 05EV.DICARLOERMES
Application deadline	within 20 days following the day of the announcement publication
Useful information for submitting the project proposal by applicants	The project proposal must have a maximum length of 9.000 characters (spaces excluded).