

COLLABORATIVE DOCTORAL PARTNERSHIP (CDP)

CALL FOR EXPRESSION OF INTEREST

IN

ONE Ph.D. POSITION

Topic:

“Development of circularity assessments for sustainable sourcing of critical and strategic resources strengthening EU resilience and competitiveness”

Application deadline:

October 30th, 2025 - 11.59 pm (CET)

ACADEMIC YEAR 2025/2026

The Alma Mater Studiorum – Università di Bologna (hereinafter referred to as University of Bologna) and the Joint Research Centre of the European Commission (JRC) are inviting applications for **one PhD position through the Collaborative Doctoral Partnerships (CDP) scheme** – Topic: “*Development of circularity assessments for sustainable sourcing of critical and strategic resources strengthening EU resilience and competitiveness*”. This topic contributes to the overarching scope of this agreement on the thematic field “Development of methods to monitor progress, design transformations and identify solutions to achieve SDGs (thematic field 4)”, with a focus, in particular, on SDG 9 and 12 (Agreement n. 36084).

Art. 1 - PhD PROGRAMME

The candidate will be enrolled in the XLI cycle of the Ph.D. Programme in **Industrial Chemistry**.

The University of Bologna will award a Ph.D. Degree at the end of the three-year Programme after successfully completing all Ph.D. requirements, including the successful defense of the Thesis as provided by the **University Regulations on Doctoral Programs** available on the University website at the page [PhD Programmes](#).

Art. 2 - Ph.D. RESEARCH TOPIC - PROJECT OBJECTIVES AND DESCRIPTION

The Ph.D. research activities will focus on developing circularity assessments for sustainable sourcing of critical and strategic resources strengthening EU resilience and competitiveness, addressing therefore the objective of the agreement to secure and sustainable supply of raw materials for strategic value chain. The topic is coherent with the research lines included in the Ph.D. Programme in Industrial Chemistry and with the JRC mission.

Short Description of the project and main objectives:

This CDP PhD project will be aimed at the development of circularity assessments for sustainable sourcing of critical and strategic resources strengthening EU resilience and competitiveness.

RESPONSABILE DEL PROCEDIMENTO: ROSSELLA TABARONI

AFORM SETTORE DOTTORATO DI RICERCA

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This PhD project aligns with the EU's Circular Economy Action Plan and related policies like the Battery Regulation, Ecodesign for Sustainable Products Regulation (ESPR), and Critical Raw Materials (CRMs) Act, which aim for EU climate neutrality and resource resilience by 2050. Focusing on steel and other critical materials, it addresses supply risks, resource use, and the role of circularity in enhancing sustainability. Steel, prioritized in the ESPR, is vital for transport and energy but faces issues like contamination, poor scrap quality, and loss of critical elements (e.g., niobium) during recycling. The project will analyze material flows and life cycles, life cycles, and—using methodologies like material flow analysis (MFA) and life cycle assessment (LCA) and novel circularity indicators—to identify new and complete mitigation strategies.

Starting e.g. with the steel value chain in passenger cars, the research will expand to other critical and strategic materials (e.g., aluminum) and sectors, assessing how circularity can strengthen EU competitiveness and strategic autonomy. It will also contribute to policy opportunities, such as the Steel and Metal Action Plan, recycled content targets in the end-of-life vehicles regulation, and/or ESPR of aluminum intermediate products.

By bridging policy initiatives and scientific analysis, this project seeks to advance resource efficiency, circularity, and sustainability in key industrial value chains, supporting the EU's low carbon and digital transitions.

Art. 3 - JOB LOCATIONS

European Commission – Joint Research Centre

Unit D.3 Land resources and supply chain assessments, Via Enrico Fermi, 2749 - 21027 Ispra (VA) – Italy

University of Bologna

Via Zamboni, 33 – 40126 Bologna (BO) - Italy

Art. 4 - PROFILE OF THE PHD CANDIDATE

- Master's degree (MSc) or equivalent within a relevant scientific area of the Ph.D. Programme in Industrial Chemistry, Chemistry, or Environmental Science.
- Knowledge/experience in life cycle assessment, material flow analysis, critical raw materials supply chains, material circularity indicators.
- Languages: excellent working knowledge (written and oral) of English. Knowledge of Italian language is preferential.
- Soft skills: strong interest in the European project; team player; flexible attitude, keen interest in developing field skills.

Art. 5 - DURATION OF THE DOCTORAL PROGRAMME, RESEARCH CONTRACT AND SALARY

The CDP PhD project will have a total duration of three (3) years. The students first stay at University of Bologna for 6 months. Afterwards, the student will stay at the JRC for 24 months, followed by a last stay at University of Bologna for 6 months to complete the PhD thesis.

During the stay at the University of Bologna, PhD students will receive 12 months of scholarship normally paid to PhD students enrolled in PhD programme in Industrial Chemistry.

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During their stay at the JRC, the PhD candidate will be employed by the JRC as a Grantholder Category 20 pursuant to the [Grantholder Rules of 30.10.2012](#) or any future rules that will replace the GH Rules. The national law of the JRC site where the Grantholder will be based shall apply to their contract of employment with the JRC.

While employed at the JRC, the salary and benefits are those of a JRC Grantholder Category 20, following the [Grantholder rules](#). The annual gross salary will be around 45.000 Euro and is subject to national income tax.

At the JRC, the PhD candidate will join the Sustainable Resources Directorate, located at the JRC site in Ispra, Italy. For more information about the JRC, please consult:

- <https://ec.europa.eu/jrc/en>;
- <https://ec.europa.eu/jrc/en/research-topic/raw-materials>;
- <http://rmis.jrc.ec.europa.eu> .

The starting date of the Ph.D. Programme is provided for November 1st, 2025, the Programme will end on October 31st, 2028; the defense of the thesis will be held before October 31st, 2029.

Art. 6 - WHO CAN APPLY

- Italian and foreign citizen's holder of *laurea Specialistica/Magistrale/laurea Vecchio Ordinamento* conferred by an Italian University by the 31st of October 2025 may apply.
- Italian and foreign citizen's holder of *master's degree* conferred by a foreign University by the 31st of October 2025 may apply for the selection, enclosing the official transcripts of the academic degree, accompanied by an Italian or English translation, also made by the applicant's and under their own responsibility.

Applicants with degrees (EQF Level 7 or II cycle Degree) conferred by a foreign University are conditionally admitted to the selection and will be excluded from it, if the academic title does not comply with the requirements for access to the Ph.D. level, as stated in this announcement.

They must attest the authenticity and the comparability of the qualification awarded (e. g. Diploma Supplement, Declaration of Value - Dichiarazione di Valore in loco - of the second-cycle degree issued by the Italian Diplomatic authorities located in the country in which the qualification was awarded, recognition of foreign qualifications carried out by agencies like the ones of ENIC-NARIC network).

Candidates should, prior to the start of the employment contract with the JRC:

- have the nationality of a Member State of the EU or [a country associated to the EU Research Framework Programme in force](#) or being resident in a EU Member State since at least five years and
- be enrolled in a PhD programme with the HEI.

Candidates who are already enrolled in the doctoral study program with the HEI for fewer than 12 months can also be considered eligible.

The selected candidate will have no more than 6 months from the request for confirmation of interest in the position, to produce proof of enrolment in the doctoral study program.

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For candidates with third-countries nationality (i.e. who are neither from Member States of the EU nor from countries associated with the Research Framework Programs - Horizon 2020), the recruitment is subject to a security clearance and to the issuance of a residence and work permit in Italy for the period of the stay at JRC.

Art. 7 - HOW TO APPLY

Applicants must send their expression of interest via email aform.udottricerca@unibo.it, with the following Ref. [*Name_Surname_expression of interest JRC-CDP_PhD Programme in Industrial Chemistry*]. **Deadline** to submit the application, including all documents required for the selection (listed below): **October 30th, 2025 - 11.59 pm (CET)**.

Documents required for the selection:

- **Identity Document** with photo;
- **CV (in English), publications**, other qualifications
- For applicants with degrees awarded in **Italy: (bachelor's and master's** degrees or combined-cycle degree), a **self-certification** dated and signed attesting the completion and awarding of the degree, containing a list of exams taken and the corresponding grade, the title of the thesis and grade.

For applicants with degrees awarded **abroad: (bachelor's and master's** degrees or combined cycle degree) documents attesting the completion and awarding of second-cycle degrees. The documents must include name of the awarding institution, type of degree, name of the degree programme, date in which the degree has been awarded, final mark, academic transcript of records, including the full list of the exams taken and the related marks. Please also indicate the related CFU or ECTS (if provided by the education system in which the degree has been awarded).

The JRC reserves the right to request additional documents in order to ensure the compliance with all requirements and specific rules applicable to JRC sites. The selected candidate must also be recognized as medically fit to carry out the work activities foreseen. To this end, the candidate must undergo, in advance and independently, the medical checks specified by the JRC.

Art. 8 - SELECTION PROCEDURE

Candidates will be selected on the basis of their qualifications, CV (in English) for the assessment of their aptitude to carry out research as well as the assessment of their knowledge on the specific field of the research project to which the CDP position is referred, according to the following procedure:

- pre-selection by University of Bologna (evaluation on qualification documents);
- final selection by JRC in agreement with the University of Bologna Admission Board.

The pre-selection is carried out by a specialized Admission Board appointed by the University of Bologna and chosen among professors and researchers with experience on the topics subject of the Call, guaranteeing an adequate gender representation.

At the end of the pre-selection process, the resulting ranking list consisting of a minimum of 2 and a maximum of 5 candidates, will be sent to the JRC host Unit D.3 (together with the candidates' applications), for the final selection; the JRC Grantholders Human Resources Unit will organize an evaluation panel with the pre-selected candidates.

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At the end of the selection procedure, the JRC will contact each pre-selected candidate to inform about the outcome of their application, the successful candidate will then be contacted by the University of Bologna for the enrolment procedure.

All relevant information and name of successful candidate will be published on the **University of Bologna** [website](#).

Art. 9 - ENROLMENT

The successful candidate will be contacted by the Ph.D. Unit of the University of Bologna for the enrolment procedure.

PhD candidates must pay the enrolment charges for each academic year, including insurance premium (of € 1,04), stamp duty (of € 16,00) and the regional tax (of € 140,00) for the right to higher education. The current amount of the enrolment charges is €157.04. Such amount could vary, due to the decision of the competent bodies.

The amount of tuition fees is established by the Board of Governors of the University of Bologna. In the academic year 2025/2026, no tuition fees are envisaged for attending PhD programmes.

The enrolment charges cannot be reimbursed under any circumstances.

Art. 10 - INTELLECTUAL PROPERTY ON RESEARCH RESULTS AND PUBLICATIONS

Intellectual and industrial property rights to any findings of the Ph.D. student are governed in accordance with current legislation (Copyright Law - Legislative Decree 633/1941 - and Industrial Property Code - Legislative Decree 30/2005), to the **Regulations for the management of industrial and intellectual property rights with reference to research activities carried out by university personnel** and, if necessary, according to what is established in individual agreements with universities, companies or entities involved.

Ph.D. Students are required to sign appropriate confidentiality undertakings in relation to information, data and documents of a confidential nature of which they may become aware in the course of their work at and/or on behalf of the University.

The Ph.D. Student is, in any case, guaranteed the opportunity to carry out the normal publication activities envisaged by the programme, which must be scheduled in a manner compatible with the protection of any results.

Art. 11 - PROCESSING OF PERSONAL DATA

Personal data pertaining to this procedure are collected and processed for the University's institutional purposes in accordance with Articles 13 and 14 of EU Regulation 2016/679 - General Data Protection Regulation (GDPR).

For more details, follow the University of Bologna [webpage](#) of the **Data Protection**.

Art. 12 - PUBLICITY

The Call is published - in its entirety, on the University of Bologna [website](#). It is also advertised on the Ministry of Education's website and on the European website Euraxess.

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Art. 13 - THE PROCEDURE MANAGER

For all purposes pertaining to this call, the Unit in charge is the Educational Services Area - "Unit Ph.D. Office" – Via Irnerio, 49 - 40126 Bologna.

Information and clarifications on application submission can be addressed to e-mail aform.udottricerca@unibo.it.

The procedure manager is Ms. Francesca Cottone.

Art. 14 - FINAL PROVISIONS

Competition documents are public, to which access is permitted in the manner established by Law No. 241 of August 7, 1990.

For anything not expressly provided for in this announcement, please refer to **University Regulations on Doctoral Programs** available at the page [PhD Programmes](#) and to the statutory, regulatory and ministerial provisions cited in the decree announcing the Call for Applications.

The University reserves the right to exclude at any time candidates who participate in the exams provided for in this call, for failure to comply with the provisions given therein or the deadlines specified therein, or for failure to meet the requirements.

RESPONSIBLE FOR THE PRESENT ADMINISTRATIVE PROCEDURE

Dott.ssa Rossella Tabaroni – AFORM – Education and PhD Administrative Division (e-mail: aform.udottricerca@unibo.it; PEC: scriviunibo@pec.unibo.it).

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