

RECRUITMENT NOTICE

Chaire de Professeur Junior (CPJ)

For an intended duration of 6 years

Recruitment for a research and teaching project on a fixed-term contract known as the "Chaire de Professeur Junior " aims to allow the candidate, after evaluation of his or her scientific value and professional aptitude, to access a permanent position as university professor.

Details regarding the recruitment process and the contract are available online:
<https://www.uca.fr/universite/travailler-a-luca/recrutement-chaire-professeurs-juniors>

Job description and project statement

Title of contract and position to be filled: Tenure-track position

Position: Junior Professor

Hosting institution: Université Clermont Auvergne

Name of the head of establishment /organization: Mathias BERNARD

Location: Clermont-Ferrand

Academic region: Auvergne Rhône Alpes

Position number:

Faculty: Polytech Clermont

Department: Embedded Systems, Electrical Energy and Robotics

Project name: Wireless power transfer for mobile robotics

Keywords: Magnetic resonance, wireless power transfer, resonance converter, optimal trajectory control, mobile robotics.

Intended duration: 6 years

Scientific theme: Power electronics, Mobile robotics, Electromagnetism

Corresponding CNU/CoNRS/CSS section(s): CNU 63 ou CNU 61

Research fields EURAXESS:

<i>Champs 1</i>	<i>Sous-champs 1</i>	<i>Champs 3</i>	<i>Sous champs 3</i>
Electrical Engineering	Robotics	Electromagnetism	
<i>Champs 2</i>	<i>Sous champs 2</i>	<i>Champs 4</i>	<i>Sous-champs 4</i>
Applied physics			

Job profile: Junior Professor in Power Electronics and Mobile Robotics

Special Focus: Wireless Power Transfer by Magnetic Resonance

Short teaching and research profile:

- PhD in electronics, power electronics, robotics, or a related field, with significant experience in wireless power transfer using magnetic resonance.
- Experience in project management and high-level scientific publications.
- Strong skills in power electronics, modeling, simulation, and mobile robot.
- Ability to develop interdisciplinary collaborations and secure research funding.
- Teaching skills in power conversion and electric mobility.
- Innovative mindset, autonomy, pedagogical skills, and teamwork skills.

University strategy:

UCA is pursuing a policy of excellence around the theme “Designing sustainable models of living and production” in response to the societal challenges of the 21st century. In terms of research, this strategic focus took shape in 2011 with the recognition of the IMobS3 Laboratory of Excellence (Innovative Mobility: Smart and Sustainable Solutions), dedicated to the development of innovative components and systems for the mobility of people, goods, and machines. This laboratory notably draws on the Auvergne Platform for Intelligent Vehicles (PAVIN), which simulates a mini-city with roads and intersections, used to test a wide range of algorithms aimed at increasing autonomous vehicles. The theme of innovative mobility is now part of the Clermont Auvergne Project CAP 20-25, within the international research center “Innovative Transportation and Production Systems” (CIR ITPS).

To reinforce this focus, UCA is applying for European funding to build a demonstrator for a “connected inductive road,” aimed to transfer power to vehicles wirelessly. On the education side, Polytech Clermont, the engineering school within Clermont Auvergne INP, which leads this chair, has concentrated its educational strategy on three major societal issues: sustainable development, future mobility, and energy. This chair will reinforce that strategy and, more broadly, with the mission of Clermont Auvergne INP. Recently, INP gain a call for proposals about “Skills and careers of the future”. Including the Sustainable Mobility Academy, dedicated to technical, social, legal, economic, and environmental transitions.

Department strategy:

The Pascal Institute, a CNRS Engineering Joint Research Unit, designs innovative and intelligent systems, aiming to strengthen interdisciplinary research and foster emerging areas.

The tenure-track proposal, with a strong emphasis on innovation, extends exploratory research initiated in 2021 through a CIFRE springboard, followed by a doctoral thesis entitled "Dynamic Wireless Charging System", defended in 2024, which led to a patent application for "2D control of loosely coupled resonant converters for wireless power transfer", supported by Clermont Auvergne Innovation.

The UMR's PHOTON (CNU 63), ISPR (CNU 61), and M3G (CNU 60) research groups have submitted a "connected inductive road" project to the FEDER funding, in partnership with a consortium including UCA, SMTAC, and VINCI. The aim of the chair is to develop and strengthen interdisciplinary efforts in mobile robotics at the Clermont-Ferrand campus, building on its established scientific expertise and granted by the ITPS Research and Innovation Centre (CIR ITPS), which has an annual budget of €1.4 million.

Strategy to enhance the international attractiveness:

As part of its strategic plan and institutional objectives, UCA is committed to enhancing its international outreach. This effort based on its ability to capitalize on European funding instruments and major international calls for projects by increasing both the number and success rate of its applications, thereby securing a stronger position in global scientific rankings and boosting its international influence.

In line with this overall strategy, the CPJ recruitment system has been leveraged by making international experience one of the key criteria in the candidate selection process. The presence of UCA staff with significant international backgrounds will help structure and strengthen partnerships, improve responses

to funding opportunities, and support the development of international networks that benefit both research and education.

In June 2024, UCA's project "Alliance for Regional Transition, Equality, Mobility, Inclusion and Sustainability (ARTEMIS)" was awarded under the "European Universities" initiative. ARTEMIS seeks to advance higher education development, research collaboration, and deeper community engagement. The chair will contribute to this alliance by facilitating the exchange of international Master's students, academic staff, and by helping to develop a joint degree program aligned with the FISA track in "Energy Conversion and Electric Mobility."

It will foster the development of strong collaborations with HVL – Western Norway University of Applied Sciences, in a context where Norway is aiming for a fully electric vehicle fleet by 2025.

HVL has integrated new academic and research fields into its strategic roadmap to address the major challenges of sustainable mobility, responsible innovation, and the energy transition.

Scientific project:

Wireless power transfer for mobile robots is a promising technology that enables power delivery without physical connections. This is particularly beneficial in environments where cables are cumbersome or hazardous or in sectors where productivity gains are critical.

Our scientific project focuses on magnetic resonance, which is better suited to increasing the autonomy of mobile robots and improving productivity either by allowing them to recharge while stationary or near a power source. This paves the way for applications across various fields such as logistics, agriculture, and space exploration.

The main scientific challenges lie in optimizing transfer efficiency (CNU 63) and enhancing guidance performance (CNU 61) to develop integrated and high-performance systems.

We are seeking a scientist capable of bridging power electronics and mobile robotics to help shape a forward-looking profession.

We also offer a high-quality experimental framework Electric road Clermont project (starting from July 1st, 2025 to December 31, 2028, with approximately €1 million in funding).

Teaching project:

For the past two years, Polytech Clermont has been steering its training strategy toward sustainable and collaborative engineering, with a focus on sustainable development, future mobility, and energy.

In September 2020, a cross-disciplinary program in "sustainable mobility" was launched; open to all departments at Polytech Clermont, with an average of 12 students per cohort.

In June 2023, Clermont Auvergne INP was awarded an calls for proposals "Skills and careers of the future" and is now playing a key role in funding the transversal training option "Sustainable Mobility and Infrastructure," set to launch in October 2025.

In June 2024, a letter of intent for a FISA program in "Energy Conversion and Electric Mobility" was submitted to the Engineering Title Commission, with a planned launch in October 2026.

The goal is to train engineers capable of specifying, designing, implementing, and managing electrical energy conversion systems, while taking into account the physical, economic, and environmental constraints of the electric mobility sector.

Funding:

ANR welcome pack	200 k€
PhD	120 k€
Post-doctoral researcher (three-year contract)	0 k€
Research assistant	40 k€
Equipement	30 k€
Travel funds	15 k€
Co-funding possible	150 k€
PhD student (three-year fellowship financed by UCA)	PhD student on Electric Vehicles and additional equipment
Total	350 k€

Diffusion scientifique:

As part of this project, at least 6 A-rank publications are planned (target: 1 per year), 6 international conferences with proceedings (including A-rank proceedings in selective international conferences in the field), 3 national conferences, 2 patents, and public communications.

Open science:

The project is part of an approach that will respond to the UCA EPE's open science policy, which reflects the commitments made in this area (<https://science-ouverte.uca.fr/nos-engagements/engagements-uca>). The list of publications mentioned above will be in an open archive platform (HAL).

Science and society:

The project and its results will be communicated to the public in several ways:

- Through demonstrations, particularly during the Science Festival;
- Through popularization lectures in educational and cultural institutions and at national events such as the Science Festival;
- Through press releases to local and national media (newspapers, radio stations, television channels).

The successful candidate will be able to leverage the "Science with and for Society" label that the site obtained in November 2021.

In particular, the project leaders, Polytech Clermont and Pascal Institute, will organize a major public outreach event at the end of the project.

Indicators:

Support will be provided by the UCA to assist and advise the candidate on administrative, regulatory, HR, and financial matters, and to seek solutions in the event of difficulties.

A quarterly scientific review will be conducted with the directors of the Pascal Institute and Polytech Clermont to monitor the project's progress (work in progress, publications, and dissemination of results), the search for additional funding, any difficulties encountered, and any potential reorientations.

This monitoring aims to ensure the best possible conditions for tenure upon completion of the Junior Professorship.

Job attractiveness

- The junior lecturer has a teaching service obligation on an annual basis of 64 hours HTD without the possibility of doing complementary courses,
- He/she will be supported throughout the project by a scientific advisor,
- The gross annual salary is : 41 331 € (based on INM 735),
- The junior professor will benefit from an ANR support of 200 k€ (PhD student, post-doc, project funding).

Organisation of the interview

Only those candidates who have been selected by the selection committee on the basis of their applications will be invited to the audition.

Planned role-playing YES ☐ NO ☒

The interview will last 50 minutes: it will start with a 20-minute presentation of the candidate's scientific and pedagogical background, motivations, and research and teaching projects. The interview will conclude with 30 minutes of discussion with the members of the selection committee.

At the end of the interviews, the committee will decide on the merits of the candidates, taking into account the quality and originality of their research projects, their motivations, their forward-looking vision of the field and their capacity for scientific and teaching supervision.

NOMINATION PROCEDURE AND TIMETABLE

Candidates must **imperatively** enter their declaration and submit the documents on the website ODYSSEE **by clicking here** [ICI](#)

Opening of registrations on ODYSSEE: **July 7, 2025, 10 a.m. (Paris time)**,
deadline for submission of the file on ODYSSEE: **August 25, 2025, 4 p.m. (Paris time)**

Any file that is still incomplete on the deadline will be declared inadmissible.

YOUR APPLICATION FILE

References:

- Decree No. 2021-1710 of December 17, 2021 relating to the junior professor chair contract provided for by article L. 952-6-2 of the education code and by article L. 422-3 of the code of the research
- Order of 6 February 2023 setting the procedures for applying for recruitment by way of junior professorship contract

The candidates send a file in digital version to the President of the University Clermont Auvergne. The file is accessible to the members of the selection board.

In accordance with [article 26 de l'arrêté du 6 février 2023](#), the application file includes the **following documents**:

- 1) The application form entered online (under ODYSSEE);
- 2) Both sides of an identity document with photograph
- 3) A document attesting to the possession of a doctorate, as provided for in article L612-7 of the education code, or for candidates who do not hold a doctorate, a diploma whose equivalence is recognized by the Council of Staff of Teachers and Teacher Researchers (CP2E) of UCA, according to the procedure set out in 1°) of article 5 of decree 2021-1710 of December 17, 2021;

- 4) The diploma defense report produced (Thesis defense report);

It is recommended that the document be on university letterhead with the names of the referees identifiable.

- 5) An analytical presentation of the work, books, articles, achievements and activities related to the profile of the position in question, mentioning those that the candidate intends to present at the audition, **produced on the model of the " fiche de candidature CPJ » (to be downloaded from the CPJ page of the site UCA or [click here](#))**

- 6) Full work of each article, book or achievement the candidate wishes to present during the interview. (max 6 documents)

French translation of certain documents:

The administrative documents (documents 2 and 3) as well as the defense report written in whole or in part in a foreign language must be accompanied by a translation into French, of which the candidate certifies compliance on honor. Otherwise, the file is declared inadmissible.

The translation of the analytical presentation as well as the works, books, articles and achievements is optional.

In the event of multiple applications, the candidate must compile a file for each position for which he/she wishes to apply.

Warning: ODYSSEE is not compatible with the use of a tablet or smartphone, please use a computer only.

ADDITIONAL INFORMATION

Additional information on recruitment and the characteristics of this UCA contract are available on the Clermont Auvergne University website: www.uca.fr, "University" tab then "Working at UCA" then "Recruitment of teaching staff" and "Recruitment of Junior Professor Chair": please [click here](#)

YOUR APPLICATION AND STAFFING SCHEDULE

Dematerialized application:

You will not receive any paper documents from the University.

The ODYSSEE will allow you:

- to monitor your application(s) and the processing status of each file,
- to learn about the result of the recruitment,
- to formulate, if necessary, your acceptance of position.

Provisional timetable:

- **Collection of applications:** until August 25, 2025 until 4:00 p.m. (Paris time)
- **Selection of applications and auditions*:** october 2025
- **Entry into office:** between december 1, 2025

* See the calendar on the UCA website: <https://www.uca.fr/universite/travailler-a-luca/recrutement-chaire-professeurs-juniors>