Universidad Rey Juan Carlos

GOBIERNO DE ESPAÑA · MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES · AGENCIA ESTATAL DE INVESTIGACIÓN

PhD POSITION · PREDOCTORAL CONTRACT (FPI-TYPE)

DOLCE: Dynamics of Liquid Crystal Elastomers

Universidad Rey Juan Carlos (URJC), Madrid, Spain · Project PID2025-174364OB-I00

The project

Liquid crystal elastomers (LCEs) are soft materials that couple the elasticity of rubber with the orientational (nematic) order of liquid crystals. This coupling gives them unusual properties, such as large reversible shape changes and strong energy dissipation, that make them attractive for soft robotics, aerospace and defense applications.

DOLCE investigates the time-dependent mechanical behavior of LCEs and its relation to their internal nematic order, combining experimental, theoretical and computational approaches. The project is carried out in collaboration with leading international research groups (Caltech, Technion).

The position

Host	URJC, Department of Chemical, Energy and Mechanical Technology (ITPS), Móstoles / Madrid
Supervisors	Prof. Jesús Rodríguez Pérez and A. Prof. Juan Carlos Nieto Fuentes
Field	Mechanical Engineering (solid mechanics, mechanics of soft materials)
Contract	Full-time predoctoral contract, up to 4 years, funded by the Spanish State Research Agency (AEI)
Start date	Tentatively 2027 Q2

What you will do

- Carry out experimental and computational research on the mechanical behavior of advanced soft materials.
- Develop and apply characterization and modelling methodologies, working with the research team.
- Analyze and interpret results and write scientific publications.
- Take part in research stays at partner institutions and present results at international conferences.

Who we are looking for

- **Education:** Bachelor's and Master's degree in Mechanical Engineering, Materials Science, Physics, Chemistry or a related field. Not already holding a PhD.
- **Nationality:** Spanish or EU national, or non-EU citizen with legal residence in Spain at the time of application.
- **Doctoral enrolment:** admitted to, or eligible for admission to, a URJC doctoral program for 2026-27, with full-time enrolment proven at contract signature.
- **Skills:** solid background in mechanics of materials and polymers; experimental and computational experience is valued.

How to apply

Contact: juancarlos.nieto@urjc.es, jesus.rodriguez.perez@urjc.es

Deadline: November 7, 2026