



UNIVERSITY OF  
LINCOLN

## UNIVERSITY OF LINCOLN JOB DESCRIPTION

<b>JOB TITLE</b>	Post Doctoral Research Associate in Mathematical Sciences				
<b>DEPARTMENT</b>	School of Engineering and Physical Sciences				
<b>LOCATION</b>	Lincoln Campuses				
<b>JOB NUMBER</b>	CHS275	<b>GRADE</b>	7	<b>DATE</b>	December 2026
<b>REPORTS TO</b>	Senior Lecturer in Mathematics and Physics				

### CONTEXT

A post-doctoral Research Associate position is available to work in the research group of Dr. Helen Christodoulidi as part of the EPSRC-funded New Investigator Award Project: *Ergodicity and Lyapunov Exponents in Many-Body Hamiltonian Systems*.

This project aims to approach statistical mechanics using elements from integrable systems theory. This mathematical and computational approach intends to show that integrable systems field is invaluable even beyond its applicability boundaries within a traditional perturbation theory framework.

The role holder will investigate the role of adiabatic invariants, quantities that have the potential to reshape the framework of statistical mechanics and bring together microscopic and macroscopic properties of a many-body Hamiltonian system. The project will conclude with a study on analytic methods for evaluating Lyapunov exponents.

The role holder will work closely with Dr. Christodoulidi throughout the project. The position requires the ability to carry out both analytical and numerical tasks, and strong skills in programming are essential.

The funds for this post are available for 3 years.

### JOB PURPOSE

The Post Doctoral Research Associate is responsible for conducting research on the project, as directed by the Principal Investigator, and is expected to operate with a degree of autonomy. They are not expected to operate as an independent researcher.

The post holder may be required to help supervise the work of more junior researchers.

## KEY RESPONSIBILITIES

Literature Surveys
Undertake literature surveys and other investigations of the state-of-the-art, and prepare reports as required.
Programme of Research
Undertake a programme of research under the direction of the Principal Investigator, demonstrating a significant level of autonomy.  Lead in the production of high quality research outputs, including reports, papers and other publications of national/international standing.
Project Management
Perform project management activities, planning, scheduling, monitoring and reporting on progress of research projects.
Liaison and Networking
Identify and liaise with internal and external collaborators, and with colleagues in the Department, maintaining positive and effective working relationships.
Internal Research Activities
Participate in and help to organise internal research activities, including seminars, research meetings and conferences.
Continuous Professional Development
Undertake continuous professional development activities.
Grant Applications
Contribute to the production of grant applications.
Teaching Support
Engage in teaching support activities, up to a maximum of three hours per week, possibly including leading a small number of units (no more than two per annum).

**In addition to the above, undertake such duties as may reasonably be requested and that are commensurate with the nature and grade of the post.**

## ADDITIONAL INFORMATION

### Scope and dimensions of the role

The Postdoctoral Research Associate will be appointed on the EPSRC New Investigator Award for the full duration of the research project (36 months), which covers salary, conference participation and research visits. The postholder will be responsible for managing all aspects of a focused research programme, including conducting literature reviews, developing methodologies, analysing results, and supporting dissemination and knowledge-exchange activities.

The fellow will have access to computing facilities, training, outreach, and knowledge exchange activities, requiring budget management and strategic planning skills.

### Key working relationships/networks

Internal	External
<ul style="list-style-type: none"><li>• Principal Investigator</li><li>• Head of School</li><li>• Other research and academic staff within the school</li></ul>	<ul style="list-style-type: none"><li>• Research collaborators</li></ul>



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## UNIVERSITY OF LINCOLN PERSON SPECIFICATION

<b>JOB TITLE</b>	Post Doctoral Research Associate in Mathematical Sciences	<b>JOB NUMBER</b>	CHS25
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<b>Selection Criteria</b>	<b>Essential (E) or Desirable (D)</b>	<b>Where Evidenced Application (A) Interview (I) Presentation (P) References (R)</b>
<b>Qualifications:</b>		
PhD in Mathematics or Physical Sciences	<b>E</b>	<b>A</b>
Extensive knowledge specific to project/area	<b>E</b>	<b>A/I</b>
<b>Experience:</b>		
Extensive experience of relevant research methods	<b>E</b>	<b>A/I</b>
Authorship of research outputs of national/international standing	<b>E</b>	<b>A/I</b>
Experience of research in specific project area	<b>E</b>	<b>A/I</b>
Teaching support	<b>D</b>	<b>A/I</b>
<b>Skills and Knowledge:</b>		
Ability to design, conduct and project manage original research in the subject area	<b>E</b>	<b>A/I</b>
Excellent written communication, including the ability to write reports and research outputs	<b>E</b>	<b>A/I</b>
Ability to prioritise own workload and work to specified deadlines under pressure	<b>E</b>	<b>A/I</b>
Ability to communicate complex subjects orally	<b>E</b>	<b>A/I</b>
Skills specific to project/area	<b>E</b>	<b>A/I</b>
<b>Competencies and Personal Attributes:</b>		
Flexible approach to workload	<b>E</b>	<b>I</b>
Ability to work on own and as part of a team	<b>E</b>	<b>I</b>
Enthusiasm and commitment	<b>E</b>	<b>I</b>

**Essential Requirements** are those, without which, a candidate would not be able to do the job. **Desirable Requirements** are those which would be useful for the post holder to possess and will be considered when more than one applicant meets the essential requirements.

<b>Author</b>	HC	<b>PBP</b>	LW
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