PhD Position in Physics for MSCA-DN "MS-RADAM" DC4

Type of Contract – Temporary

Job Status – Full-time

Application Deadline – April 15, 2026

Offer Starting Date – July 1, 2026

Work location – Frankfurt am Main, Germany

Where to apply – team@mbnresearch.com

MS-RADAM ("MultiScale phenomena in RAdiation DAMage") is a European Doctoral Network project funded by the Marie Skłodowska-Curie Actions (MSCA) programme. The project brings together leading academic and industrial partners from eight European countries (Germany, France, United Kingdom, the Netherlands, Czech Republic, Sweden, Denmark and Georgia) to train a new generation of interdisciplinary researchers.

MS-RADAM aims to advance the understanding of key radiation-induced biodamage phenomena at the nano- and larger scales, with applications in particle therapy, radiotherapy, and radioprotection. These include the formation of DNA strand breaks by ionising radiation, DNA repair, radiosensitisation by metal nanoparticles, cell survival and radioresistance.

The MS-RADAM research programme combines state-of-the-art computational multiscale modelling (using DFT/TDDFT methods, collision theory, molecular dynamics, stochastic dynamics, Monte Carlo and analytical methods) and its thorough validation using advanced experimental techniques (such as mass spectrometry, electron microscopy, radiochemistry and radiobiology experiments with biomolecular and biological systems such as oligonucleotides, DNA origami, radiosensitising nanoparticles, living cells and multicellular targets).

MS-RADAM invites applications for a **36-month, full-time, fixed-term position as a Doctoral Candidate (DC). The successful candidate will be employed by the MBN Research Center gGmbH in Frankfurt am Main, Germany, and enrolled in the PhD programme at Goethe University Frankfurt.** MBN Research Center is internationally recognised as a leading expert in the multiscale theory and simulations of molecular and condensed matter systems exposed to radiation, the development of advanced computational solutions for multiscale modelling and their application in various technology-related research activities.

The DC4 research project, entitled **"Nanochemistry of irradiated biomacromolecular systems"**, will focus on modelling radiation-induced chemical processes in biologically relevant media. Using a computational multiscale approach—including reactive molecular dynamics, irradiation-driven molecular dynamics, stochastic dynamics, and analytical models—the project will investigate the dynamics of biologically relevant media on femto-to-nanosecond time scales following irradiation, particularly focusing on the formation and

transport of reactive species in the vicinity of ion tracks and radiosensitising nanoparticles. The modelling results will be validated through close collaboration with experimental partners within the MS-RADAM network.

In addition to specialised scientific training, the position offers extensive international mobility, secondments to partner organisations, and training in transferable skills such as research management, communication, and career development.

For further information, visit:
https://www.mbnresearch.com/MS-RADAM/DC-research-projects

Requirements

Research Field – Physics, Chemistry, Computer Science, Biophysics

Education Level – Master Degree or equivalent

Skills/Qualifications

Candidates must:

(a) hold a University Master's Degree in theoretical physics, computational physics, physical chemistry, biophysics, or a related field

(b) have proven experience of using software tools for computer simulations (e.g. quantum chemistry calculations, molecular dynamics, Monte Carlo simulations, etc.)

(c) be highly motivated to conduct research using theoretical and computational physics methods

(d) be available to start on **01.07.2026**

(e) have excellent English language skills (both spoken and written)

(f) be able to travel internationally on a regular basis, e.g. to attend regular project meetings, conferences and training activities

(g) be able to work in an international environment, be highly motivated and reliable, and be able to meet strict deadlines

Specific Requirements

To be eligible for this position, candidates must comply with the MSCA mobility rule: you must NOT have lived or worked in Germany for more than 12 months in the 36 months immediately prior to the recruitment date (01.07.2026).

How to Apply

Please send the following documents as a single PDF file to **team@mbnresearch.com** **before 15 April 2026:**

(i) your full CV

(ii) a copy of the most recent diploma (Master's or equivalent)

(iii) a copy of your marks and grades

(iv) a letter of motivation

(v) two letters of recommendation

Please include **"MS-RADAM DC4 Application"** in the email subject line. In the email, please also include the following clause:

'I consent to the processing of my personal data for the purposes of this recruitment process in accordance with the EU GDPR'.

Please note that incomplete applications will not be considered.

Additional information

Benefits

Annual Salary: within the range of the EU MSCA Doctoral Network programs. Monthly Mobility Supplement and Monthly Family Allowance (if eligible): according to the MSCA Doctoral Network programme rules.

Eligibility criteria

(a) The candidate must not have already earned a doctoral degree.

(b) At the time of recruitment, the candidate must not have lived or conducted their main activities (work, study, etc.) in the country of recruitment for more than 12 months in the 3 years prior to the recruitment date/start date of the activities.

(c) The candidate must meet ALL admission requirements for the PhD program at Goethe University Frankfurt. These requirements must be fulfilled at the start of the contract.

(d) Candidates of all nationalities and genders are welcome to apply.

(e) In line with MSCA requirements, candidates must be willing to undertake international mobility (four months) during the project implementation. This is a mandatory requirement.

Selection process

The selection process will consist of the following steps:

(a) Initial screening by the future supervisor and the host organisation team based on submitted documents.

(b) Shortlisted candidates will be invited to an online interview.

(c) Final selection determined through the interview process.

Evaluation criteria

(a) The candidate’s CV and profile

(b) Graduation marks

(c) Relevance of the MSc thesis and other scientific outputs

(d) Prior work experience

(e) Candidate’s motivation