

PhD candidate - Charged Particle Deposition in the Respiratory Tract (f/m/x)

102143



Full time
40



Neuherberg near
Munich



Helmholtz Munich | © Matthias Tünger Photo design

We are Helmholtz Munich. In a rapidly changing world, we discover breakthrough solutions for better health.

Our research is focused within the areas of metabolic health/diabetes, environmental health, molecular targets and therapies, cell programming and repair, bioengineering, and computational health. We particularly excel in the fields of basic research, bioengineering, artificial intelligence, and technological development.

Through this research, we build the foundations for medical innovation. Together with our partners, we seek to accelerate the transfer of our research, so that laboratory ideas can reach society and improve people's quality of life at the fastest rate possible.

This is what drives us. Why not join us and make a difference?

At the **Helmholtz Munich**, Germany, we are looking for an enthusiastic, dedicated, and able to "think outside the box" PhD candidate, who is eager to dive into impactful research at the crossroads of environmental health and aerosol particle dynamics. If you are passionate about science, want to express yourself through the impactful research that drives change - join our international and dynamic research team at the **Institute of Epidemiology (EPI)**.

Here, we investigate the links between environment, lifestyle and genetics in the development of diseases. The main focus is on metabolism, respiratory, allergic, cardiovascular diseases and mental health. Our aims are to better understand the molecular mechanisms of disease development in the population, to break new ground in prevention at the individual level and to enable evidence-based preventive health care through improved environmental conditions. The research relies, among other things, on the unique population-based KORA resources (cohort, heat attack registry, aerosol monitoring station) and the GINI and LISA birth cohorts. The institute is also one of the central partners in planning and execution of the NAKO Health Study and is building the central NAKO biospecimen repository.

A unique interdisciplinary collaboration between EPI and **Lung Health and Immunity Environmental Health Center (LHI)** will provide you the opportunity for hands-on experience in environmental epidemiology, as well as aerosol-human interaction. As a PhD fellow, you will play a vital role in advancing the understanding of how charged particles deposit in the respiratory system and affect human health. Your contributions will involve laboratory experiments, data analysis, and scientific result dissemination in a close collaboration with experienced researchers in the fields of aerosol science and health.



Your tasks

1. **Literature Review:** Conduct a thorough literature review on charged particle deposition in the respiratory system, identifying research gaps and preparing for the upcoming experimental project phase***
2. **Experimental Set-Up:** Work closely with a team of international experts to prepare experimental set-up (based on literature review) for respiratory deposition experiments.
3. **Experiment:** Perform measurements of aerosol deposition in the respiratory system, collect data, and gain insight into particle behavior within respiratory models.
4. **Experiment Expansion:** Expand and optimize measurement set-up to encompass a wide range of parameters affecting respiratory deposition.
5. **Data Evaluation:** Employ advanced statistical analyses to identify significant factors influencing deposition efficiency. Leverage toxicological and epidemiological data predict health effects of inhaled aerosols.
6. **Scientific Outreach:** Contribute to the dissemination of research findings through the preparation of scientific publications, reports, and presentations for conferences.

Your profile

- Master's degree in Physics, Biotechnology, Environmental Science, Biomedical Science, or equivalent fields.
- Basic experience in at least three of the following fields: aerosol science, bioengineering, (basic) computational modelling, (basic) cell culture techniques, advanced statistics, epidemiology.
- Intermediate to advanced skills in R, Python, or other statistical/programming language.
- Exceptional teamwork, communication, and collaboration skills. Enthusiasm and motivation to work in an international multi-disciplinary environment.
- Scientific curiosity, ability to think outside the box, and commitment to scientific excellence.
- Good communications skills in spoken and written English; German is of advantage.

Desirable qualifications

- Experience with advanced laboratory aerosol generation and measurement techniques and equipment related to particle deposition.
- Hands-on experience with the Multiple Path Particle Dosimetry Model (MPPD Model).
- Technical skills in rapid manufacturing (e.g., 3D-printing; casting).

Benefits



Career counseling

Career Center for PhD candidates



Family Support

On-site kindergarten, holiday care, care for the elderly



Health Promotion

Sports, company doctor, mental health initiatives



International Staff Service

Support with the relocation and integration process in Germany



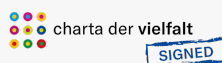
Personal Development

Continuous education and training



Scientific Training

Helmholtz Munich Graduate School



This position provides the opportunity for you to build specialist knowledge whilst developing key professional experience, both of which will help you to make strides in your scientific career.

Remuneration and social security benefits are based on the German Collective Wage Agreement for Public-Sector Employees at Federal Level (EG 13 50% *TV EntgO Bund*). In addition, there is also the possibility of receiving an allowance if the applicable conditions are met. The position has an (initial) fixed term of three years but may be extended under certain circumstances.

We are committed to promoting a culture of diversity and welcome applications from talented people regardless of gender, cultural background, nationality, ethnicity, sexual identity, physical abilities, religion or age. Qualified applicants with physical disabilities will be given preference. If you have obtained a university degree abroad, we will require further documents from you regarding the comparability of your degree. **Please request the Statement of Comparability for Foreign Higher Education Qualifications as early as possible.**

Interested in applying?

If you have any questions, feel free to contact Dr. Otmar Schmid (otmar.schmid@helmholtz-munich.de), who will be happy to help.



Your application should include

- CV
- Cover letter
- Contact details for at least two referees
- Degrees/Diplomas/Certificates
- References from recent employers

November 20th, 2023

Extended Deadline: 29 January 2024

Please send your documents to
otmar.schmid@helmholtz-munich.de



How we
promote
your
career?

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Deutsches Forschungszentrum für Gesundheit und
Umwelt (GmbH)
Institute of Epidemiology

