The Ruhr-Universität Bochum is one of the leading research universities. The university draws its strengths from both the diversity and the proximity of scientific and engineering disciplines on a single, coherent campus. This highly dynamic setting enables students and researchers to work across traditional boundaries of academic subjects and faculties.

Nanoparticles are one of the most important classes of catalyst materials. However, many of the nanoparticles suffer short lifespans or low energy conversion rates because of catalyst degradation or inactivity. This can be optimized through a good knowledge of activity, selectivity, and stability of the active sites of catalyst nanoparticles. The solutions to the problem require information about the atomic scale microstructure, but achieving this experimental information is a notorious challenge, especially for particles less than 100 nm in diameter. In this project, the successful PhD candidate (m/f/d) will synthesize metallic nanoparticles (or oxide nanoparticles) used in low temperature fuel cells or for water electrolysis. She or he will employ a combination of state-of-the-art atom probe tomography and aberration-corrected transmission electron microscopy to study complex nanoparticle systems, revealing the three-dimensional surface and internal structure and chemistry of catalyst nanoparticles before and after service. This information will provide a rational guide to nano-engineering catalysts in order to develop cost-effective and high efficiency sustainable energy sources.

The successful candidate (m/f/d) will be working in the new research center for interface-dominated high-performance materials (ZGH) at Ruhr University Bochum, which houses a large and comprehensive suite of equipment dedicated to nanostructure analysis; the center is among the best facilities of its kind in the world. He or she will have access to world-class set of laboratories and more than 10 major microscopy platforms, including the state-of-the-art atom probe, aberration-corrected TEM and focused ion beam etc.

The load of teaching will be calculated according to §3 of Lehrverpflichtungsverordnung (state of North Rhine-Westphalia).

Travel expenses for interviews cannot be refunded.

At Ruhr-Universität Bochum, we wish to promote careers of women in areas in which they have been underrepresented, and we would therefore like to encourage female candidates to send us their applications. Applications by suitable candidates with severe disabilities and other applicants with equal legal status are likewise most welcome.

**Anforderungsprofil**

The candidate (m/f/d) must have:
• an excellent master degree in materials science, inorganic chemistry, nanoparticle synthesis, or electrochemistry
• experience with synthesis of core-shell alloyed nanoparticles or oxide nanoparticles (e.g., perovskites) for water electrolysis
• can independently conduct potentiostat measurements including cyclic voltammetry, electrochemical impedance spectroscopy, chronopotentiometry, Chronoamperometry etc
• a high level of spoken and written English
• can work both independently and as part of an interdisciplinary team
• ability to plan and organize the PhD project effectively
• can work in multicultural environment
• self-motivated and eager to learn

The candidate (m/f/d) may have:

• experiences in operating transmission electron microscopy
• experiences in analyzing X-ray photoelectron spectroscopy data

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**Vergütung**
TVL 12/13

**Art der Beschäftigung**
Vollzeit

**Zeitraum der Beschäftigung**
4 Jahre

**Bewerbungsfristende**
Freitag, 11. September 2020 - 23:59

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**Kontakt**

**Vorname**
Tong

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Bitte beziehen Sie sich in Ihrer Bewerbung auf [https://www.stellenwerk-bochum.de/](https://www.stellenwerk-bochum.de/)