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DLR – DAAD Fellowships

Fellowship No. 630

- Research Area :** Aeronautics / Space
- Research Topic:** **Development of advanced sensor designs based on nanostructured mixed metal oxides**
- DLR Institute:** Institute of Materials Research
- Location:** Cologne, Germany
- Position:** Postdoctoral Fellow
- Openings:** 1
- Job Specification:** The detection of the gases, especially Hydrogen (H₂) in mixed and inert gas environments is attracting great interest relying on the applications of hydrogen as green fuel on combustion and energy supplier in fuel-cells. Due to the crucial influence of material composition and morphologies on gas sensing performance, designed synthesis of semiconducting mixed metal oxide in various morphology, porosity and in combination with different material layers and arrays is challenging and requires clever monitoring of process steps for development of advanced gas sensing materials and devices. In the past years, the department of High-Temperature and Functional Coatings has conducted substantial research on the fabrication of gas sensing materials and development of sensor design. The generated knowledge and obtained experience need to be extended with the development of sensor materials and layers based on metal oxides of different morphologies, as well as novel sensor designs to enable the production of highly sensitive and selective hydrogen gas sensors.
- Required Qualification:** This position requires a self-motivated and creative scientist with a highly-graded PhD or doctorate degree in physics and/or material science with emphasis on electrical engineering, device physics, solid-state chemistry and nanoscience technology and on proven expertise in nanostructured material synthesis and gas sensor fabrication and testing.

Advantageous Skills: Experience with sputtering techniques as well as solution-based synthesis of semiconducting and mixed metal oxide nanostructures of different morphology is essential. Previous knowledge and experience in fabrication of gas sensors and their electrochemical and sensing characterization (voltage-current dependencies, measuring resistance changes, potentiometric and impedance spectroscopy and equivalent circuit modelling), data analysis and interpretation, are required. Skills in characterization of the microstructural properties and phase composition of powders and coatings (XRD, SEM, EDX) as well as new material formulations/functionalization are demanded. Expertise in device design and engineering is desired. Experience with Labview programming is advantageous and expected.

English competence: See requirements on www.daad.de/dlr

Earliest Start Date: April 2024

Application Deadline: Until position filled

Further Information: <http://www.dlr.de>
<http://www.daad.de/dlr>

More information may be obtained by contacting:

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Thank you for your attention!

We look forward to receiving your application!