

Two PhD positions in the joint research project “Micromechanics-Integrated Capillary Analysis and Physics with High Resolution 4D CT and LBM-DEM Computations (MICAP-4D)”, funded by ANR and DFG

- 1 PhD position focusing on the hydro-mechanical behaviour of partially saturated granular materials based on computed tomography experiments at the Institute of Geomechanics and Geotechnical Engineering (IGG) at TU Braunschweig, Germany
- 1 PhD position focusing on coupled LBM-DEM modelling of capillary effects in partially saturated granular media in the Mechanics and Civil Engineering Lab (LMGC) at University of Montpellier, France

The *Institute of Geomechanics and Geotechnical Engineering* ([IGG](#)) at TU Braunschweig, Germany, and the Mechanics and Civil Engineering Lab (LMGC), a French laboratory in *University of Montpellier*, France, are each searching for one PhD student to investigate the hydro-mechanical behaviour of partially saturated granular media experimentally and numerically within the collaborative project “Micromechanics-Integrated Capillary Analysis and Physics with High Resolution 4D CT and LBM-DEM Computations (MICAP-4D)”.

The project is funded for three years in the joint research programme by the French National Agency for Research (Agence Nationale de la Recherche, ANR) and the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG). The tentative starting date of the project is January 2027.

While the research in Braunschweig will focus on grain- and pore-scale experiments using “4D” computed tomography, the work in Montpellier will employ cutting-edge coupled LBM-DEM simulations to model capillary effects in granular media. A close collaboration with mutual visits as well as the interaction with [Prof. Richard Wan](#) from the University of Calgary in Canada as a DFG Mercator Fellow who will contribute to theoretical modelling make this project a tri-national collaboration with a combination of complementary expertise.

Applicants for the position at TU Braunschweig should have a background in civil engineering, with a focus on geotechnical or hydraulic engineering, process engineering, or granular physics. Ideally, candidates will have prior experience in experimental modelling or a strong motivation to develop and apply experimental methods.

Applicants for the position at University of Montpellier should have a strong background in computational physics or mechanics.

Applicants interested in one of the two positions are requested to officially apply by sending the usual application material including a letter of motivation to

Prof. Dr.-Ing. habil. Marius Milatz via igg@tu-braunschweig.de

or to

Prof. Dr. Farhang Radjai via franck.radjai@umontpellier.fr

and

Dr. Nabil Younes via n.younes@bau.edu.lb