

PRESS RELEASE

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Humboldt Alumni Award boosts the modelling network at the INM

The Humboldt Award winner at the INM, Professor Robert McMeeking, is to receive the newly-created Humboldt Alumni Award. A materials scientist and mechanical engineer from the United States, Professor McMeeking intends to use the award money of €25,000 to bring about an international networking initiative: under the auspices of the INM, MePAG (Virtual Humboldt Cluster on the Mechanics and Physics of Adhesion and Grip) will bring together the skills of leading specialists from six countries, in order to carry out physical, mechanical and theoretical research into adhesion phenomena on a variety of scales. This innovative networking initiative is also intended to act as a nucleus that will enable the next generation of young scientists to form an international network at an early stage.

The network created by Professor McMeeking and by INM scientists involves specialists from Germany, Canada, the United Kingdom, the USA, Hungary and France. With this new cluster, the INM is confirming its long-standing commitment to the Humboldt Foundation philosophy: INM has so far hosted ten Humboldt scholars and award-winners in the past decade.

Nature took millions of years to develop systems that enable spiders, lizards and insects to live and move around on differing surfaces. Only if we examine the situation more closely can we see the high degree of complexity underlying that. The legs of flies and spiders are structured and hairy. Those structures are then subdivided into even finer units. Surfaces of that type provide more effective adhesion than smooth ones. Explaining this complexity in a scientific way and understanding how it affects new materials forms a core theme of MePAG.

“In this multi-lateral cooperation, we aim to truly understand the concept of adhesion as a multi-scale problem,” explained Eduard Arzt, the Scientific Director at the INM and co-founder of MePAG. From a microscopic perspective, interactions occur between the smallest units, namely between individual molecules. The next level is that of the mechanical properties of individual hairs, which are then superimposed with the interactions of other hairs, making up an adhesive pad. All three orders of magnitude are essential for a full understanding.

To explain these phenomena, experimental and theoretical approaches are needed, coupled with the specialist knowledge of a variety of experts. “Science does not stop at national borders. Our international cluster will be fed by

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many years of collaboration and friendship that originated in the bilateral exchange with Robert McMeeking,” confirmed the Scientific Director.

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INM – Leibniz Institute for New Materials, situated in Saarbrücken, is an internationally leading centre for materials research. INM conducts research and development to create new materials – for today, tomorrow and beyond. Research at INM is performed in three fields: *Nanocomposite Technology*, *Interface Materials*, and *Bio Interfaces*. INM is an institute of the Leibniz Association and has about 250 employees.