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<https://www.uni-muenster.de/Cells-in-Motion/de/people/all/grashoff-c.php>

## Exploring Cell Adhesion Mechanics on Molecular Scales

**Thursday, September 7<sup>th</sup>, 2023  
at 9:00 am**

Seminarraum B1.72

DWI – Leibniz-Institut für Interaktive Materialien

Forckenbeckstraße 50, 52074 Aachen

Host: Rudolf Leube

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**Abstract:** Recent years have seen an impressive development of molecular force sensing techniques to quantify where and when mechanosensitive proteins are exposed to mechanical loads in cells. Despite their success, it remains challenging to determine how relevant distinct force-bearing linkages are for a given cell biological process. In this seminar, I will summarize our previous work on the development and application of molecular tension sensors allowing the analysis of piconewton-scale forces acting across individual molecules in cells. I will then introduce a novel, genetically encoded, and single-molecule calibrated technology, called molecular optomechanics, to probe the mechanics of individual protein linkages with light. Together, both methods enable the investigation of molecular-scale, mechanobiological processes and facilitate the evaluation of their physiological significance in cells.