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## **Mathematical foundations of contact interactions in continuum physics**

In continuum physics the underlying laws have to be satisfied not only for an entire body but also for all of its subbodies. Classically these laws account for contact interactions between contiguous subbodies exerted across their common boundary and a well known result by Cauchy constitutes that contact interactions having a continuous density only depend linearly on the normal field of the common boundary. In the past 50 years many extensions of this theory have been discovered. Recent ones cover the occurrence of certain concentrated contact interactions were able to establish Cauchy's fundamental result for a suitable collection of subparts of sets of finite perimeter as common boundaries of subbodies. But at the same time these approaches results in a number of problems, among other things, when concentrations occur on the boundaries of subbodies.

We will present a new approach by Schuricht, which retains the advantages of the classical theory and allows a more precise description of concentrations, resolving some problems of earlier approaches. If time permits we sketch possible extensions of this approach. This is joined work with Friedemann Schuricht.