

Abstract Submitted  
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**How to make sticky tapes stickier** LAURENT PONSON, Institut d Alembert, CNRS - Universite Pierre et Marie Curie Paris VI, SHUMAN XIA, GURUSWAMI RAVICHANDRAN, KAUSHIK BHATTACHARYA, California Institute of Technology, CALIFORNIA INSTITUTE OF TECHNOLOGY TEAM — Thin film adhesives have become increasingly important in various applications such as packaging and coating, and we benefit daily of their adhesion properties by using various kinds of tapes. Despite the apparent simplicity of these systems, a certain number of questions remain open. In particular, important efforts have been deployed recently to understand the effect of the complex tridimensional and highly heterogeneous structure at the interface of some adhesives, such as the one encountered in nature like the geckos toes. Although inspired by these natural adhesives, we studied a much simpler system, and however largely unexplored: a thin film with spatially varying adhesion energy and elastic properties. We will show how these heterogeneities introduced at the microscale can generate quite unexpected macroscopic behaviors, and that one can this way design stronger adhesives with new properties. Beyond their practical interests, these systems involve long range elastic interactions and heterogeneities resulting in a rich and complex physics that will be illustrated through experimental examples and their theoretical interpretation.

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