



SLAM Seminar

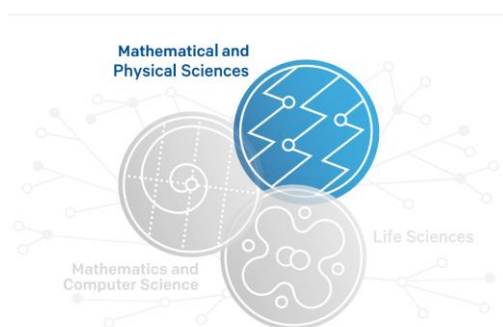
Jamming is a sticky problem

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Host: Carl Goodrich

Repulsive soft spheres are a widely studied computer model for grains, pastes, and emulsions, especially in the context of the jamming transition. However, laboratory models such as wet sand, capillary suspensions, and surfactant-stabilized oil droplets, all possess some degree of interparticle attraction. Therefore, understanding the role of “stickiness” in the soft sphere model is necessary in order to translate results from simulations to the lab.

I will discuss three ways in which even a small amount of stickiness dramatically alters the properties of the jammed solids, compared to their repulsive counterparts. (i) Rigidity: The jamming transition is pushed to lower packing fractions, and the size of rigid clusters grows continuously, rather than discontinuously, as the system passes through the transition. (ii) Linear elasticity: The shear modulus vanishes much more rapidly at the unjamming point, and the bulk modulus is continuous rather than discontinuous. (iii) Nonlinear elasticity: Sheared solids can push or pull against their shearing surface. Attraction flips the sign of this effect – sticky solids pull inwards, reminiscent of biopolymer networks.



Tuesday, May 3, 2022 at 10am
Heinzel Seminar Room / Building West



This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: <https://ist.ac.at/en/campus/how-to-get-here/> The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.