



Sliding Friction: From Microscopic Contacts to Amontons' Law
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Summary English

When two objects come into contact, for instance two hands, the friction force that is generated at the interface resists relative motion of the objects. The friction force is generally proportional to the normal force with which the surfaces are pressed together. The origin of this centuries old friction law is not trivial, we know that surface roughness plays a crucial role. When rough surfaces touch, microscopic surface irregularities are deformed. In this thesis we demonstrate a novel method for measurement of such rough frictional contacts using pressure sensitive fluorescent molecules. We compare our experiments to contact and friction theories and show that contact formation and friction are more complex than so far assumed.