Dynamics of Asperity Contacts --- 2.Deformation processes of contacting asperities upon the onset of sliding

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We have made an indentation experiment in which the sample was forced to move horizontally with being indented by a conical or Vickers indenter. The sample materials are aluminum, copper, brass and glass.

We have found that the indenter began to penetrate deeper into the sample upon the onset of horizontal movement of the sample. The horizontal distance over which the indenter sinks is independent of sliding velocity and is inversely proportional to Vickers hardness of the material.

Based on the observation, we propose a simple model for asperity deformation at the initiation of slip.