Supporting information

Frictional properties of a polycationic brush

Maryam Raftari, Zhenyu Zhang, Steven R. Carter, Graham J. Leggett, and Mark Geoghegan



Approach (top) and retraction curves (bottom) as a function of pH for a silicon nitride atomic force microscope (AFM) tip in contact with a poly[2-(dimethyl amino)ethyl methacrylate] (PDMAEMA) brush.



Approach (top) and retraction curves (bottom) as a function of pH for a mercaptoundecanoic acid-functionalized AFM tip in contact with a PDMAEMA brush.



Approach (top) and retraction curves (bottom) as a function of pH for a gold-coated AFM tip in contact with a PDMAEMA brush.



Approach (top) and retraction curves (bottom) as a function of pH for a dodecanethiol-functionalized AFM tip in contact with a PDMAEMA brush.

Supporting information



Friction force as a function of load for a PDMAEMA brush in contact with different tips for pH between 1 and 6. The solid lines are fits to the data, made by application of the general transition equation or Amontons' law, as described in the text. The error bars represent the average of three experiments on three different positions of each of three different surfaces; 27 measurements in total for each point.



Friction force as a function of load for a PDMAEMA brush in contact with different tips for pH between 7 and 12. The figures follow the same vertical order and experimental protocol as those for pH between 1 and 6.