

Sliding water contact electrification on plasma-treated surface

Monday, 5 December 2022 16:00 (2 hours)

Water drops moving down inclined hydrophobic and insulating surfaces acquire a charge and deposit counter charges onto the solid surface. This charge separation by sliding drops is also called slide electrification. One of the general observations on fluorinated polymers is that sliding drops leave negative charges on surfaces. Our aim here is to determine if charging processes can be controlled by already existing charges at surfaces deposited by other means. How do these changes influence the potential of sliding drops and the charge that is carried away. This understanding will then be useful for understanding of surfaces with different wetting properties. To clean surfaces, often plasma treatment is involved as an essential step. Here we address the question of how plasma treatment influences the charging of Fluorinated SU-8 surface and sliding water drops. While fluorinated SU-8 shows the normal drop charge-versus-drop number (Q-vs-n) behaviour, the curve for plasma-treated surfaces is very different. Surface charge was examined by Kelvin probe and zeta potential.

Primary authors: Ms DARVISH, Fahimeh (Max Planck Institute for Polymer Research, Ackermannweg 10, D-55128, Mainz, Germany); Dr BERGER, Rüdiger (Max Planck Institute for Polymer Research, Ackermannweg 10, D-55128, Mainz, Germany); Prof. STEFFEN, Werner (Max Planck Institute for Polymer Research, Ackermannweg 10, D-55128, Mainz, Germany); Prof. BUTT, Hans-Jürgen (Max Planck Institute for Polymer Research, Ackermannweg 10, D-55128, Mainz, Germany)

Presenter: Ms DARVISH, Fahimeh (Max Planck Institute for Polymer Research, Ackermannweg 10, D-55128, Mainz, Germany)

Session Classification: Poster Session