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Removal of bio-aerosols by water flow on surfaces in health-care settings HAN YU, YUGUO LI, The Univ of Hong Kong — Hand hygiene is one of the most important and efficient measures to prevent infections, however the compliance with hand hygiene remains poor especially for health-care workers.[1]
To improve this situation, the mechanisms of hand cleansing need to be explored and a detailed study on the adhesion interactions for bio-aerosols on hand surfaces and the process during particles removal by flow is significant for more efficient methods to decrease infections. The first part of presentation will focus on modelling adhesion interactions between particles, like bacteria and virus, and hand surfaces with roughness in water environment. The model presented is based on the DLVO and its extended theories.The removal process comes next, which will put forward a new model to describe the removal of particles by water flow. In this model, molecular dynamics is combined with particle motion and the results by the model will be compared with experiment results and existed models (RnR, Rock & Roll). Finally, possible improvement of the study and future design of experiments will be discussed.

[1]World Health Organization. **WHO Guidelines on Hand Hygiene in Health Care.** 2009

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