

## **Abstract**

Presented here are the results of analytical and numerical simulations for colloidal systems driven by ratcheting potential switching on and off stochastically. We observe the variation of the resultant directed current as a function of the ratcheting frequency. In the case of an interacting colloidal system, molecular dynamics [3] has revealed resonance of directed current with ratcheting frequency. The analytical tools necessary, the theoretical paradigm of non-equilibrium statistical mechanics and stochastic processes (relevant parts) are also discussed in detail.