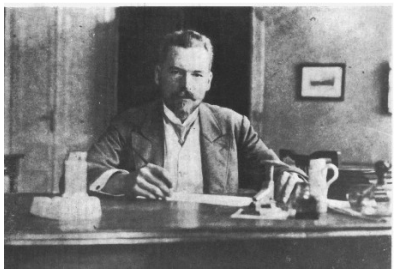

Contribution ID: **42** Type: **Talk**

Energy landscape in polymer translocation

The passage of long biochemical structures through nano-channels from one side to the other side of a membrane is a normal process in biology. Drug absorption, protein and DNA/RNA passage through cell membranes and nuclear pores, DNA packaging by phage viruses are a few known examples.

After Kasianowick work on 1996, both theoretical and experimental investigations have been developed to understand the basic physics involved in this process. Moreover, the technological advances have now permitted to manipulate single molecules and to study the translocation through artificial channels also under time dependent driving exerted by molecular motors.

The study of polymer translocation is conveniently achieved by using coarse grained models to describe the process in affordable conditions, and to better control the contribution of specific parameters involved in the dynamics.
The bead-spring-based polymer here introduced is driven by an end-pulled force applied at different velocities opens a new way to investigate translocation[1]. In fact, the assisted velocity-dependent force registered at the translocation can be analysed with a spectroscopic approach similar to the one used in the folding/unfolding of macromolecules, so permitting a new perspective in the study of the translocation phenomenon which has the goal to characterise the energy landscape in the polymer translocation.

Summary

Primary author: FIASCONARO, Alessandro (Univesidad de Zaragoza)

Presenter: FIASCONARO, Alessandro (Univesidad de Zaragoza)