

Dear Alexandra,

I would like to submit a contribution for the WE-Heraeus-Seminar on Nanopores in July.
Here is the abstract of my contribution :

Transport through the nuclear pore complex: crowding and plasticity

The nuclear pore complex is the unique gateway between the nucleus and the cytoplasm of the cells. It ensures both directional and selective transport of nucleic acids and proteins. Its detailed mechanism is still highly debated and in particular its ability to react to very different environments. Using two different single molecule techniques we studied the influence of external control parameters (molecular crowding and development stage) on its structure and dynamics. On one hand we used a near field optics technique to quantify the effect of the molecular crowding of the pore on the transport through native pores. On the other hand our results obtained using optical super-resolution indicates that development impacts the internal diameter of the nuclear pore complex. This effect can be recapitulated by a change in transcriptional activity. We also observe and quantify a 2D phase transition from a dense and amorphous structure to the large scale crystallization of the pores on a square lattice during development.

Best regards,

Fabien MONTEL

Chargé de Recherche CNRS
Ecole Normale Supérieure de Lyon
Laboratoire de Physique - UMR 5672
Site Monod, Rdc Bâtiment LR4, porte 8
46, allée d'Italie, 69007 LYON
Tel. : +33 (0)4 26 23 38 23