

Laboratoire de Biochimie Théorique

Institut de Biologie Physico-Chimique

13 rue Pierre et Marie Curie

75005 Paris

SEMINAIRE

Théo Leduc

CRM², UMR 7036 CNRS – Université de Lorraine

MoProVirtualReality, a prototype for novel VR molecular visualization

Keywords : electron density, electrostatic potential, molecular visualization, protein, virtual reality

Electron density (ED) and electrostatic potential (ESP) are scalar fields, that both have a tremendous importance to understand molecular properties¹. Scalar fields can be explored using topological descriptors, such as the field gradient or the Laplacian². These geometric descriptors have chemical significance, for example to describe atomic bonding. Virtual reality (VR) has incredible potential to visualize multidimensional data, especially when dealing with the rich geometry of ED and ESP fields. Here, we propose a new addition to MoProSuite³, a prototype of a molecular visualization software aimed at this purpose. The prototype includes support for protein structures and multipolar modelization of the ED⁴. VR interactions with molecular objects is still in search of its gold standards⁵, so we revisited them from scratch to explore user experience.

References :

1 : Laureanti et al., 2020, Protein Science, 29, 237-246.

2 : Espinoza et al., 1999, Acta Cryst., B55, 563-572.

3 : Jelsch et al., 2005, J. Appl. Cryst., 38, 38-54.

4 : Guillot et al., 2008, Acta Cryst., D64, 567-588

5 : Todd & Emsley, 2021, Acta Cryst., D77, 19-27.

Jeudi 14 octobre 2021

Salle de conférence

15h00