

Institut de Minéralogie et de Physique des Milieux Condensés
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SÉMINAIRE

Lundi 17 Février, 10h30

*Salle de Conférence, 4ème étage, Tour 22-23, Salle 1
IMPMC, Université P. et M. Curie, 4, Place Jussieu, 75005 Paris*

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STRUCTURE OF THE MOLECULAR MACHINERY INVOLVED IN BACTERIAL DNA TRANSFER BY ELECTRON MICROSCOPY

Deciphering the structure and organization of very large macromolecular complexes remains a major challenge in biology. We used electron microscopy (EM) and single particle analysis to unveil the structure of the bacterial type IV secretion (T4S) system. This system translocates virulence factors into eukaryotic cells and distributes genetic material between bacteria through conjugation. Conjugation was described for the first time in 1946 but its molecular mechanism has proven difficult to dissect in the absence of structural data for the T4S machinery. Here I will give an overview on this structure where eight proteins assemble to form a ~3 megadalton nanomachine spanning across the entire bacterial cell envelope. T4S structure is one of the largest membrane complexes obtained so far bringing unique insights into the molecular mechanisms of secretion systems and exemplifying the power of EM in reconstructing large sub-cellular machines.