



ESPCI
Laboratoire PMMH
10 rue Vauquelin, 75231 Paris Cedex 05



Séminaire PMMH

Amphithéâtre Langevin (A4), Escalier N, 2^{ème} étage

Vendredi 3 février 2017, 11h00-12h00

Aimee Wessel

Institut Pasteur

Examining prokaryotic community behavior using 3D printing

Bacterial communities engage in social activities, exhibiting behaviors such as communicating with small signaling molecules (quorum sensing [QS]) and building antibiotic-resistant biofilms. Most of our understanding of QS and biofilm formation arises from in vitro studies of bacterial communities containing large numbers of cells, often with greater than 10^8 bacteria. However, many bacterial communities are comprised of small, densely packed aggregates of cells ($\leq 10^5$ bacteria), and it is unclear how group behaviors and chemical interactions take place in densely packed, small populations. I will describe the utility of a novel protein-based three-dimensional (3D) printing strategy used to study QS, and the development of a biofilm-like nutrition gradient within picoliter-sized bacterial aggregates. Within 3D-printed, micron-sized 'houses', single cells divide normally into extremely dense populations, confined by permeable walls, and a roof. Using these houses, we provide evidence that population size and the spatial distribution of cells affect cell-cell interactions and the nutritional microenvironment within small ($\leq 10^5$ bacteria) prokaryotic communities.

Attention : pas de séminaire les Vendredi 10 et 17 février : vacances

Prochain séminaire : vendredi 24 février, Camille Duprat (LadHyX)

Programme des séminaires : www.pmmh.espci.fr, onglet *Séminaires PMMH*

Contact : Antonin Eddi, Sylvain Patinet, Étienne Reyssat, seminaires@pmmh.espci.fr