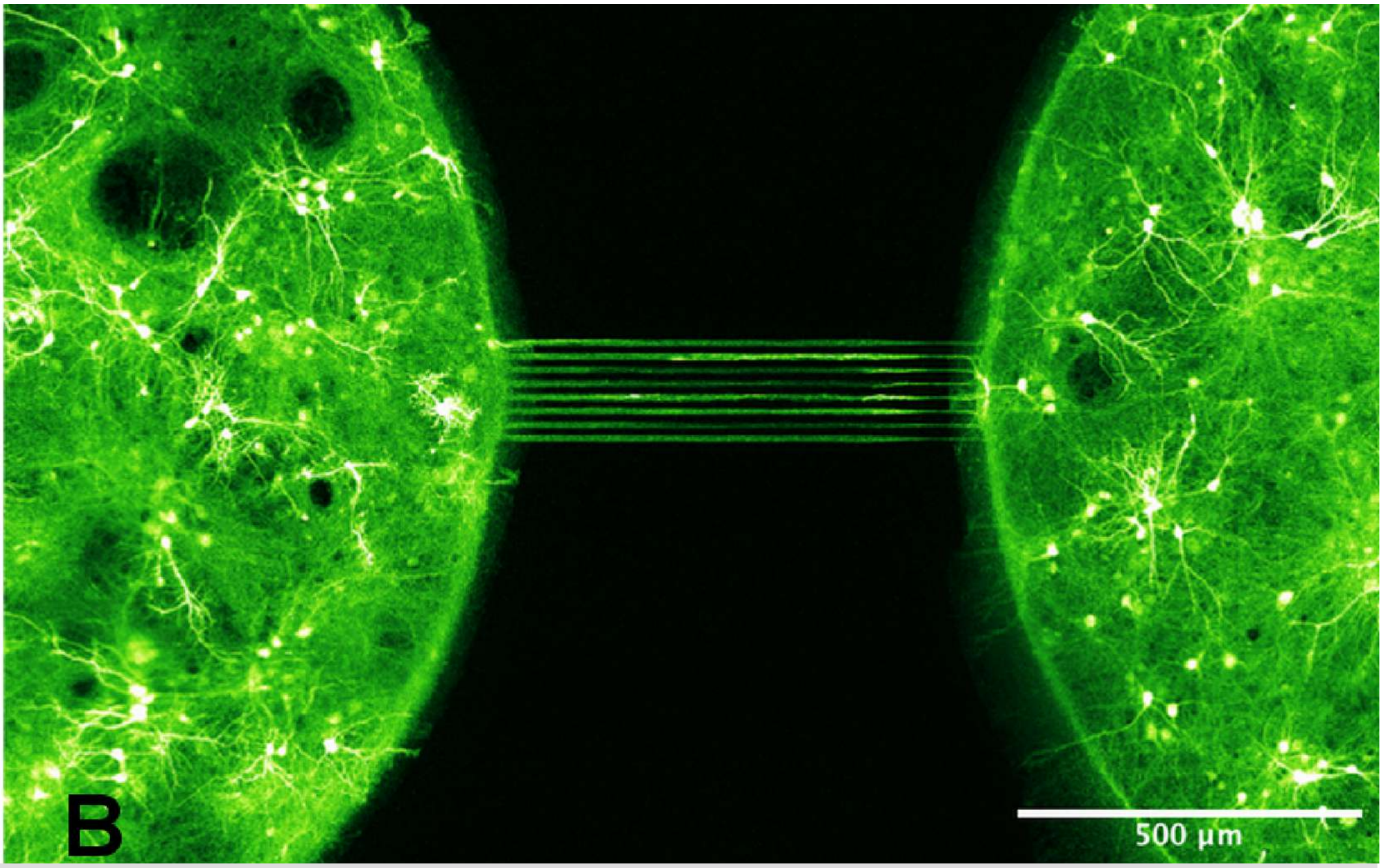

BME PARIS
BioMedical Engineering
MASTER'S PROGRAM

PRION SPREADING : FROM BRAGG TO BRAAK ?

Open Your Mind Seminar

Friday, Nov 6 2020
1.30 pm – 3 pm

Online (Microsft TEAMS)

In Vitro Neuronal Network reconstruction: What's the point?

Human brain is a complex organ composed of several hundred billions of cells and even more numerous interconnected cellular interactions. There is a high demand for experimental models to study these interactions in various contexts, ranging from cognitive sciences to studies of the cellular and molecular mechanisms of neurodegenerative diseases which lead to progressive destruction of neuronal networks. Current experimental models range from whole animal models that preserve the anatomical structures but greatly limit the experimentation at the cellular level, to dissociated cell culture systems that allow detailed manipulation of cell phenotype but lack the highly ordered and instructive brain environment. Advance in micro-technologies applied to neuronal networks is paving the way to the development of "brain on chip" that will provide completely new opportunities to the study of human neuronal networks function and dysfunction. We and others have demonstrated that microfluidic and micro-patterning techniques for neuronal cell culture allows a deterministic control of neuronal polarity and the possibility to reconstructs fully functional neuronal pathways in vitro thus bridging the gap between in vivo and in vitro models. Here I will present the interest of Brain on Chip platform in order to model complex Neurological syndromes such as Parkinson or Prion diseases.

Jean-Michel PEYRIN
Neurosciences Paris Seine CNRS UMR 8246,
IBPS, Sorbonne Université

Arts et Métiers Institute of Technology
Université de Paris
PSL Université Paris