



12 month Postdoctoral research position

“Wetting and Dispersion of Powders”

UMR SayFood, AgroParisTech / INRAE (Massy, France)

INRAE (formerly INRA) is the French National Research Institute for Agriculture, Food and the Environment: a community of around 12,000 people dedicated to carrying out research on these themes. AgroParisTech is a leading higher education and research institute (“Grande Ecole”). Both are part of University Paris-Saclay.

Poor wetting and dispersion in a liquid can affect negatively the quality of food and pharmaceutical powders, both at the consumption stage and/or at the processing stages. A previous study¹ identified the conditions leading to wicking of a liquid in the powder pores, which is a dominant mechanism conditioning powder dispersion in a liquid. More recently, the conditions leading to the formation of powder islands² and their detachment forming lumps or powder jets^{3,4}, during wetting and dispersion have been studied experimentally.

Despite some encouraging results⁵, predicting the dynamics of the dispersion of a powder at a liquid interface is still difficult, particularly in presence of liquid convection. This project, in collaboration with a world-leading pharmaceutical company, aims at studying systematically the **wetting and dispersion behaviour** into a stirred liquid of several model pharmaceutical powders to identify key **powder physical properties** conditioning the dispersion dynamics, in view of establishing **predictive models**.

We are recruiting One Postdoctoral researcher for a fixed term contract of one year. This research project will be carried out at **UMR SayFood** (recently created from the merge of UMR GENIAL and GMPA), in the **AgroParisTech center in Massy, very well connected to the centre of Paris**.

The ideal candidate has recently received a PhD in physics, mechanical, chemical or food engineering, has a strong background in Interfacial Physical Chemistry or Soft Matter and is **fluent in spoken and written English**. Fluency in French is strongly appreciated, but it is not required. The salary will depend on the level of experience. An extension of the contract beyond one year may be possible, depending on the results obtained.

Applications should be sent via email to marco.ramaioli@inrae.fr (Senior Research Scientist) and **christelle.turchiuli@agroparistech.fr** (Maître de Conférences, HDR) and should include: **the Curriculum Vitae, a letter of motivation and relevant publications**.

Please apply ASAP, but in any case before the end of October. The selection will start immediately and continue until a suitable candidate is appointed.

1 P. S. Raux, H. Cockenpot, M. Ramaioli, D. Quéré and C. Clanet, *Langmuir*, 2013, **29**, 3636–3644.

2 X. Y. Ong, S. E. Taylor and M. Ramaioli, *Langmuir*, 2019, **35**, 11150–11156.

3 X. Y. Ong, S. E. Taylor and M. Ramaioli, *Powder Technology*, 2020, **371**, 142–153.

4 X. Y. Ong, S. E. Taylor and M. Ramaioli, *Chemical Engineering Science*, 2021, 116958.

5 J. Dupas, L. Fornoy and M. Ramaioli, *Journal of Colloid and Interface Science*, 2015, **448**, 51–56.