

Accepted Manuscript

Probing foam with neutrons

Alesya Mikhailovskaya, Li Zhang, Fabrice Cousin, François Boué, Pavel Yazhgur, François Muller, Cyprien Gay, Anniina Salonen



PII: S0001-8686(17)30220-8

DOI: doi: [10.1016/j.cis.2017.07.024](https://doi.org/10.1016/j.cis.2017.07.024)

Reference: CIS 1809

To appear in: *Advances in Colloid and Interface Science*

Received date: 28 April 2017

Revised date: 17 July 2017

Accepted date: 18 July 2017

Please cite this article as: Alesya Mikhailovskaya, Li Zhang, Fabrice Cousin, François Boué, Pavel Yazhgur, François Muller, Cyprien Gay, Anniina Salonen , Probing foam with neutrons, *Advances in Colloid and Interface Science* (2017), doi: [10.1016/j.cis.2017.07.024](https://doi.org/10.1016/j.cis.2017.07.024)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Probing foam with neutrons

Alesya Mikhailovskaya¹, Li Zhang¹, Fabrice Cousin², François Boué², Pavel Yazhgur¹, François Muller^{2,3},
Cyprien Gay⁴, Anniina Salonen¹

1 Laboratoire de Physique des Solides, Université Paris Sud, France

2 Laboratoire Léon Brillouin, CEA Saclay, France

3 LICORNE, ECE Paris Ecole d'Ingénieurs, France

4. Matière et Systèmes Complexes, Université Paris Diderot, France

ABSTRACT

Foams are multiscale materials that have an enormous number of uses. As the relevant structural length-scales span from a few nanometres up to millimetres a number of characterisation methods need to be combined to obtain the full material structure. In this review we explain how foams can be explored using Small Angle Neutron Scattering (SANS). We remind the reader of the basics of SANS and contrast variation before we describe the different types of experiments that have been carried out on foams emphasising the specific role of neutrons in learning about the systems. To date SANS has been used to measure different foam structural parameters, such as the film thickness and the bubble size. Several studies have also been carried out to elucidate the organisation of the stabilising objects in the bulk solution. Finally we show how SANS measurements can be used to measure foam composition. Some of the accessible information is unique to SANS experiments, but as the method is still not very widely used on foams the review is also aimed to act as an introduction on how to carry out such measurements on foams.

Download English Version:

<https://daneshyari.com/en/article/4981417>

Download Persian Version:

<https://daneshyari.com/article/4981417>

[Daneshyari.com](https://daneshyari.com)