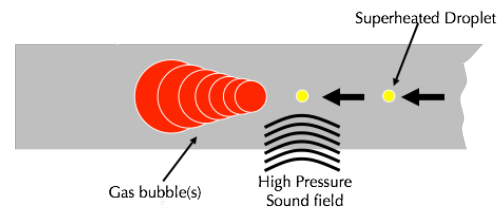


Post of engineer or post doc

Microfluidic production of droplets & study of their acoustic vaporization.

Droplets with a molecular monolayer encapsulating fluorinated liquids can be used as contrast agents for ultrasound echography or MRI imaging, and for therapeutic targeting leading to ablation of tumor cells by focused ultrasound guided by the image. To overcome their poor echogenicity they must be acoustically converted to gas bubbles through the Acoustic Droplet Vaporization (ADV) process. This ultrasound imaging, leading to diagnostics combined with targeted therapy, could become a breakthrough in the minimally invasive treatment of cancers using theranostic droplets triggered by ultrasound. Controlled fabrication of these droplets is a key challenge for targeted drug delivery.



We are looking for a talented postdoctoral fellow willing to contribute with his skills and ideas in the field of the development and fabrication, *relying on microfluidics*, of fluorinated droplets stabilized by a monolayer of amphiphilic molecules. The candidate should be comfortable with learning new techniques. Experience with ultrasound techniques is not required but it will be an advantage

Monodispersity of the droplets is a key parameter in the ADV process because the optimal frequency of the vaporization depends on droplet size.

The goal is

- to reach a perfect control of the particle radius and encapsulate volatile fluorinated liquids.
- to produce double emulsions in order to facilitate encapsulation of drugs
- to study drug release provoked by ultrasonic wave, using a setup existing at L.I.B., and compare obtained experimental results with a model developed separately in the project.

The available position is funded by a French grant from INSERM « Plan cancer ». The successful applicant will collaborate with four institutes located in Paris involved in this project: Laboratory of Statistical Physics of ENS, Laboratory of Biomedical Imaging, INSP, & Institut Jean Le Rond d'Alembert.

The application including a CV with a short statement of research interests and two names of referees (with phone and email contacts) should be sent to

urbach AT lps.ens.fr and nicolas.taulie ATupmc.fr