

POSTDOCTORAL POSITION

Institut Jean le Rond d'Alembert, Sorbonne Université - UMR 7190

We invite application for a 12 month (possibly renewable) postdoctoral position at Institut Jean le Rond d'Alembert (SU, Paris) in the field of soft matter, with a focus on experiments. The Institute is situated on the Sorbonne Université Campus in Paris. The Institute specializes in theoretical solid and fluid mechanics. A small group working on experimental physics is now well established within the lab. The postdoc will progress within this group dynamics.

Several centuries ago, scientists discovered that sprinkling sand on a plate and causing it to vibrate resulted in the grains clustering into different patterns depending on the frequency of vibration. These so-called Chladni patterns^[1] can be used to tune the design of musical instruments for example. Recently the spontaneous formation of such patterns were also studied when the plate is placed under water, generating a coupling with the flow. In this project we propose to study the dynamics of a system consisting of several masses that are free to bounce on a soft and compliant vibrating plate. Because of interactions between elasticity and particles, the objects can adapt their position so that the whole system can become resonant.

The goal of this project is to:

- i) investigate the forces of interaction between objects via their vertical and horizontal motion on the plate*
- ii) Study the self-adaptative behavior of 2 to n objects interacting on the membrane*
- iii) Explore their different modes of interaction and the self-adaptation*

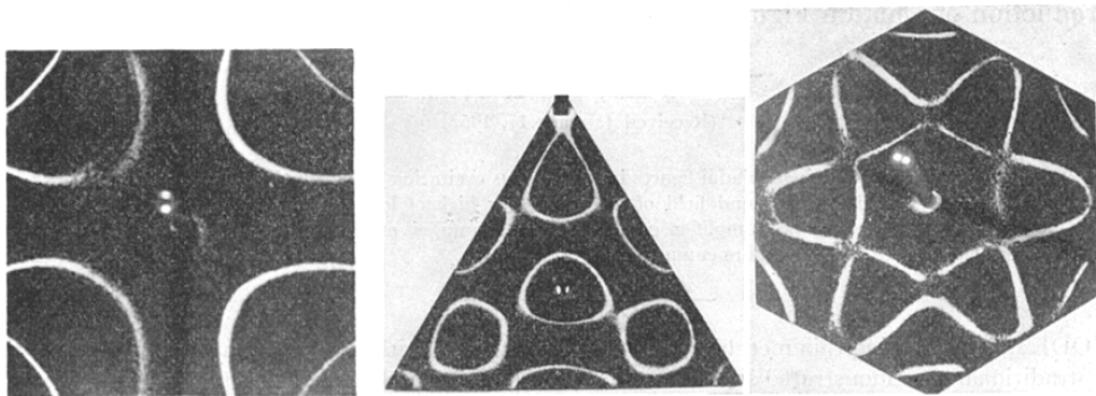


Figure: Typical Chladni patterns produced with a continuous excitation [2].

Profile: We are looking for a postdoctoral researcher with a **solid experience in experimental physics**. The potential candidates should have a **strong background** in soft matter, fluid or solid mechanics, or other closely related fields. Experience with image analysis and Matlab/Python will be appreciated.

Duration: The position is for **12 months** and should preferably start no later than December 2019.

Application: **Highly motivated candidates** should send **CV, motivation statement, names and contact informations** of one or two references to arnaud.lazarus@upmc.fr and protiere@ida.upmc.fr. Applications will be reviewed until the position is filled.

Contacts: Arnaud Lazarus and Suzie Protière (CNRS & SU) - 4 Place Jussieu 75005 Paris

[1] M. Faraday, Philos. Trans. Roy. Soc. London 52, 299 (1831).

[2] H. C. Jensen, American Journal of Physics 23, 503 (1955).