



MINISTÈRE  
DE L'ÉDUCATION NATIONALE,  
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ET DE LA RECHERCHE



## Post-Doc position

### Instabilities in a magneto-optical trap

at Laboratoire de Physique des Lasers, Atomes et Molécules (PhLAM)  
UMR 8523 CNRS and Université de Lille 1 in Villeneuve d'Ascq (France).

A post-doc position is open at PhLAM to study the instabilities of the magneto-optical trap. It is funded within the « Contrat Plan État Région *Photonics for Society* » by the « Conseil Régional Hauts de France », the « DRRT Hauts de France » and the « Fonds Européen de Développement Régional (FEDER) ».

The aim of the project is to study the instabilities that can be observed in a dense magneto-optical trap. This field has close connections with astrophysics or with the physics of plasma. From the theoretical point of view, the key ingredients are well known : absorption of the beam light and multiple scattering. In 1D, the equations can be easily written, but are highly non-linear and are difficult to solve. From the experimental point of view, the instabilities can be observed with a high speed video camera (up to 10 000 frames/sec). Some global deformations are observed, together with some local instabilities that affect only a fraction of the cloud. It seems important to have a complete view of the 3D motion of the atoms rather than a single 2D projection.

The candidate should have a solid training in laser cooling experiments. Some knowledge of non-linear dynamics is welcome. She/he should be autonomous on the experiments, but also able to work within a team. Knowledge of French would be an asset.

The position is funded for one year and can start from October 2017 to February 2018, depending on the availability of the candidate. A renewal for a second year is possible.

*Send your application or questions as soon as possible by email to [Philippe.Verkerk@univ-lille1.fr](mailto:Philippe.Verkerk@univ-lille1.fr). Please include a letter of motivation, a CV and the name of two persons (email addresses) we can contact for a reference.*