



LAPP in ATF2
Extraced from ANR bid
A.Jeremie



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Current activities related to accelerators:

The LAPP-Anecy team is currently developing an active feedback loop with sensor and actuator instrumentation, mechanical finite element simulations and automatics for complex feedback loops in the context of the EU-funded EUROTev Design Study for the future linear collider (funded during the period 2005-2007). One of the members of the LAPP-Anecy team, A.Jeremie has the responsibility of leading the Metrology and Stabilisation Work Package (WP7) of this R&D program.

Motivation to join ATF2:

This will be a unique opportunity to validate our stabilisation set-up in a realistic experimental environment. The international partners will enable us to benefit from accelerator equipment and from experienced collaborators. The LAPP-Anecy team will contribute to defining the stabilisation scheme for the final focus section of the beam, by simulating and instrumenting the corresponding accelerator components and then using the stabilisation feedback loop in real conditions with a beam.

People interested:

A.Jeremie, Y.Karyotakis, F.Cadoux, N.Geffroy (2007), B.Bolzon (2007)



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Our contribution:

The transport of the whole system (honeycomb tabletop, active supports and controller) will have to be organised. Members of the LAPP-Anncy team will travel to KEK to install the active table, commission it, and train the local staff. In parallel, the components that will have to be fixed to the active tabletop will have to be defined. In addition, the supports of these components will have to be designed or readapted in the event of reusing already existing focusing elements. These supports will be composed of stainless steel parts, precision stepper motors or piezoelectric movers. These parts will have to be purchased after the design and dimensioning phase. Finally, the frequency analysis and vibration characterisation will be necessary for the optimisation of the set-up and the design of magnet supports. Low-frequency, nanometre scale sensors will be needed for this task. This type of sensors can be found in the specialised domain of seismology.

What we will gain from joining ATF2:

The LAPP-Anncy contribution to the ATF-2 project will enable us to implement our stabilisation set-up in a realistic accelerator infrastructure with direct application to the optimisation of a particle beam. It will give younger researchers the opportunity to work in an experimental environment, with constant interaction with the work of other teams and with a large mutual transfer of know-how.