



Tilt Mechanism

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## GAIA-RVS Workshop VI

# Tilt Mechanism - Prototyping Status

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MSSL - 09/10 June 2003



## Tilt Mechanism

## Tilt Location ?

The location of the mechanism will be chosen versus the optical design.

Actually, 3 possibilities :

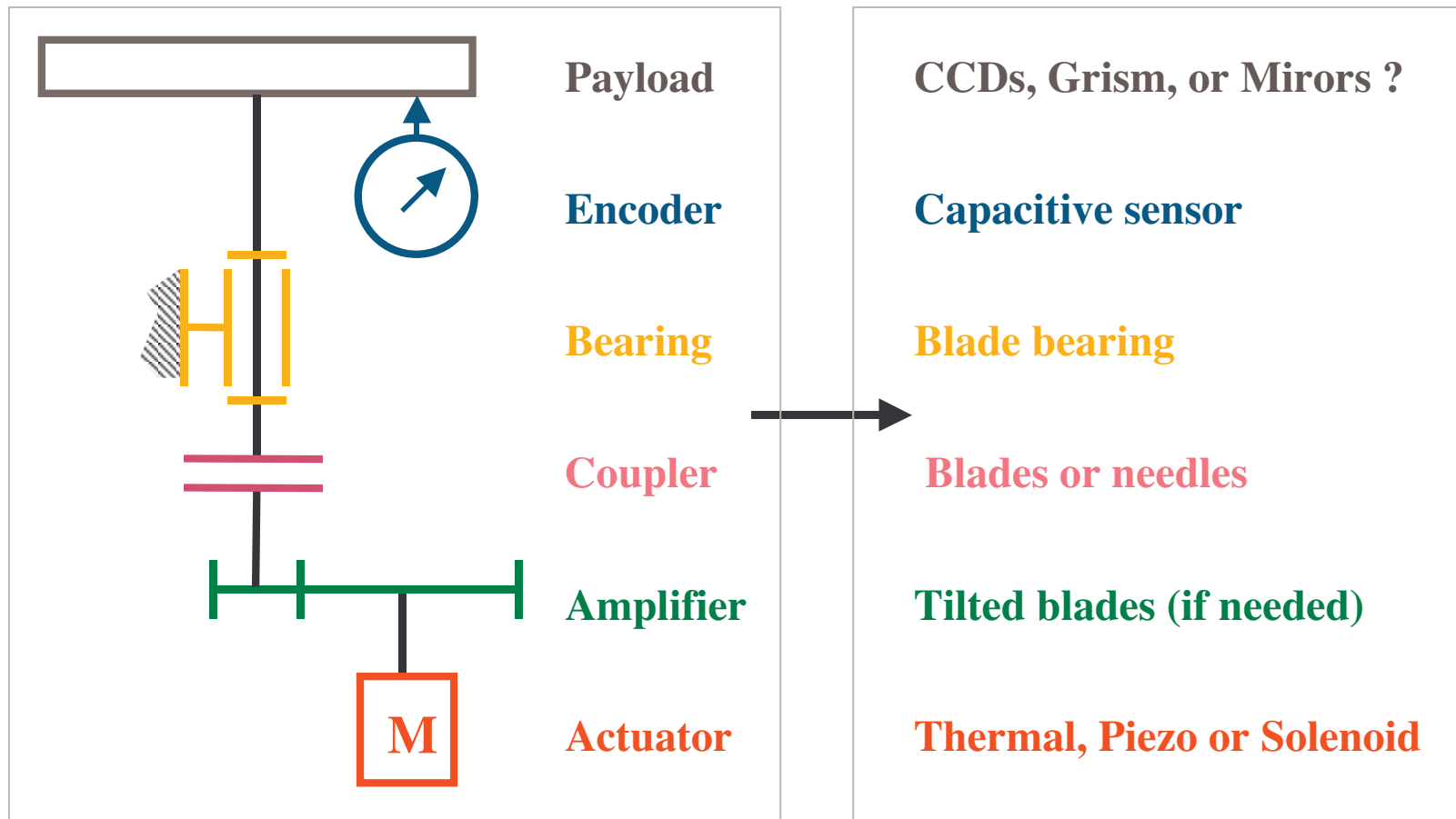
Tilt of...	CCDs	Grism	2 folding mirrors
Range	0.4 deg.	2 deg.	0.2 & 0.1 deg.
Accuracy	6 arcsec.	30 arcsec.	3 & 1.5 arcsec.



Optically the best

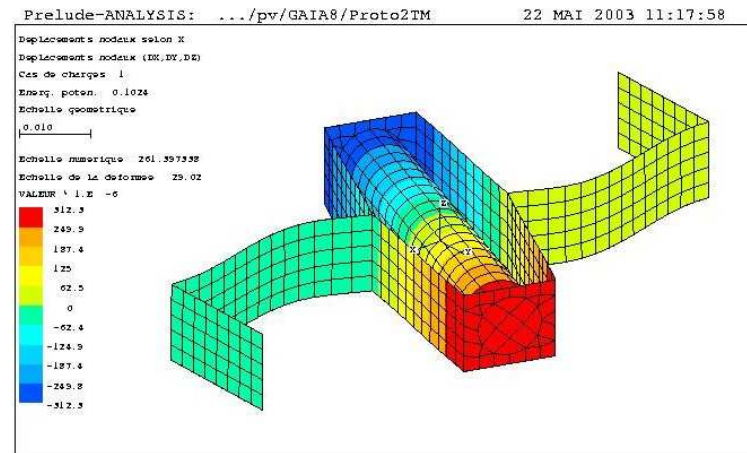
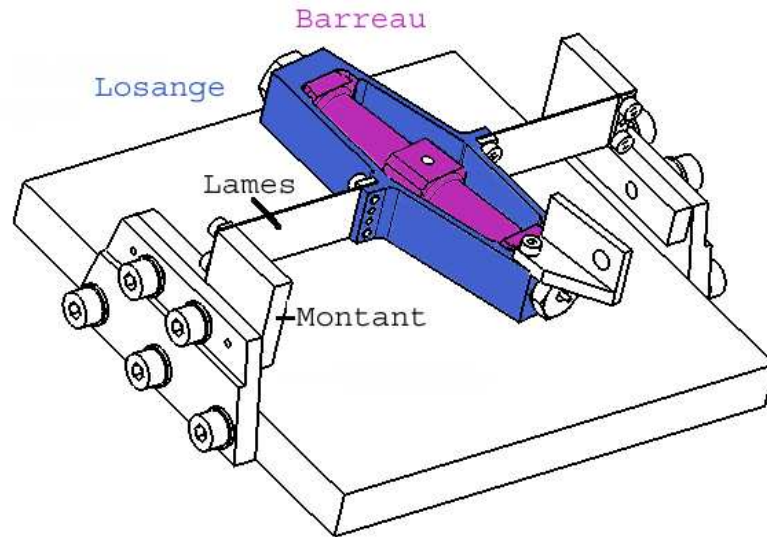


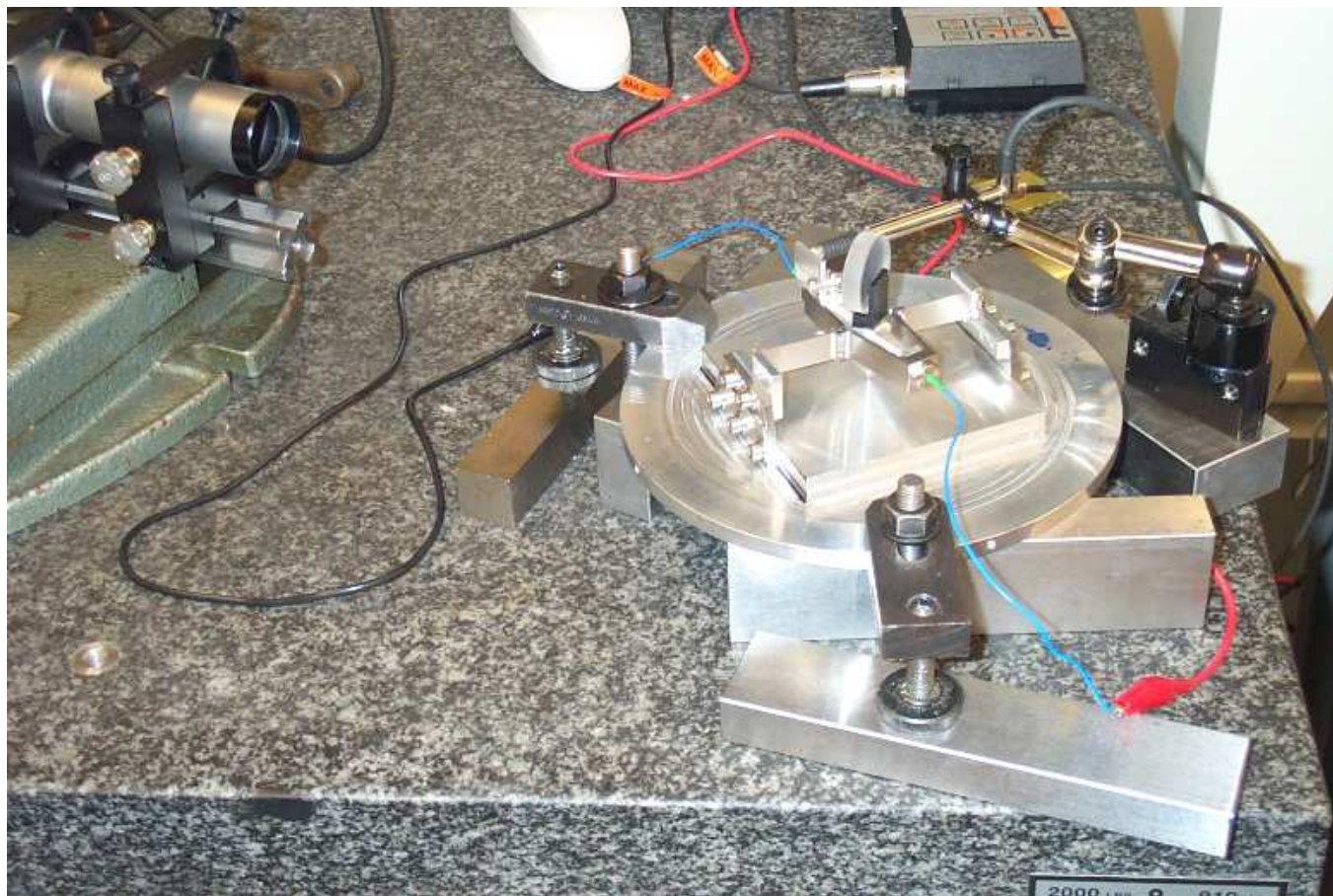
# Mechanism Breakdown





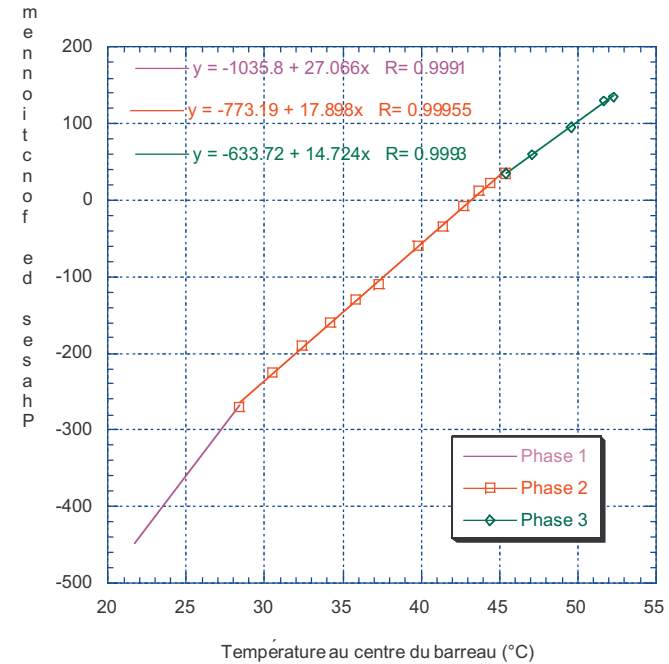
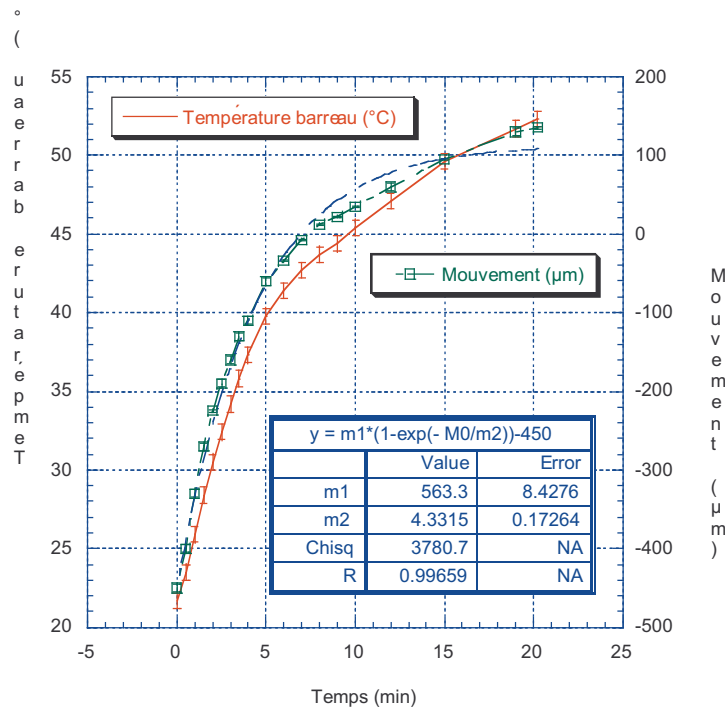
# Prototype Thermal (1)





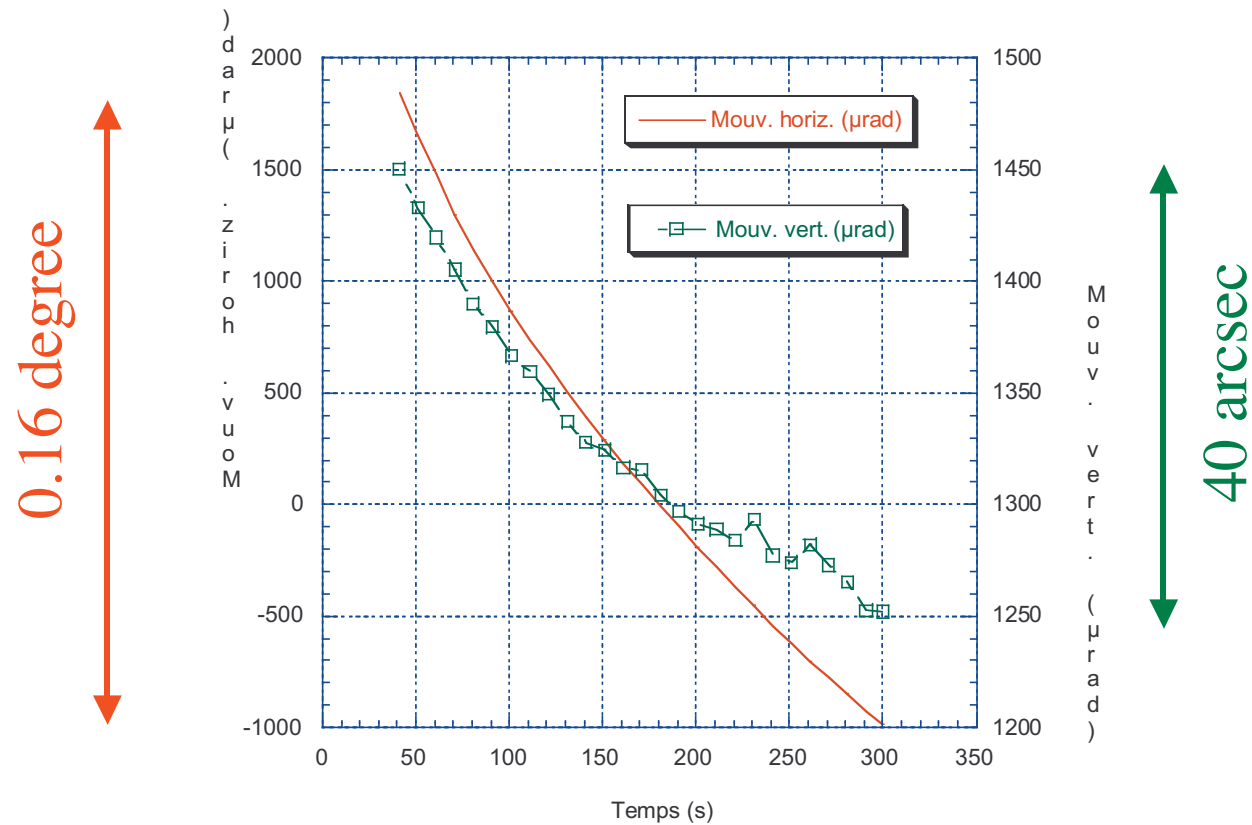


## Measures with micrometer (accuracy 47 arcsec)





Measures with autocollimator (accuracy 0.2 arcsec)





### First conclusions on a possible thermal actuator

**This system works and has the required amplitude with a power lower than 1W.**

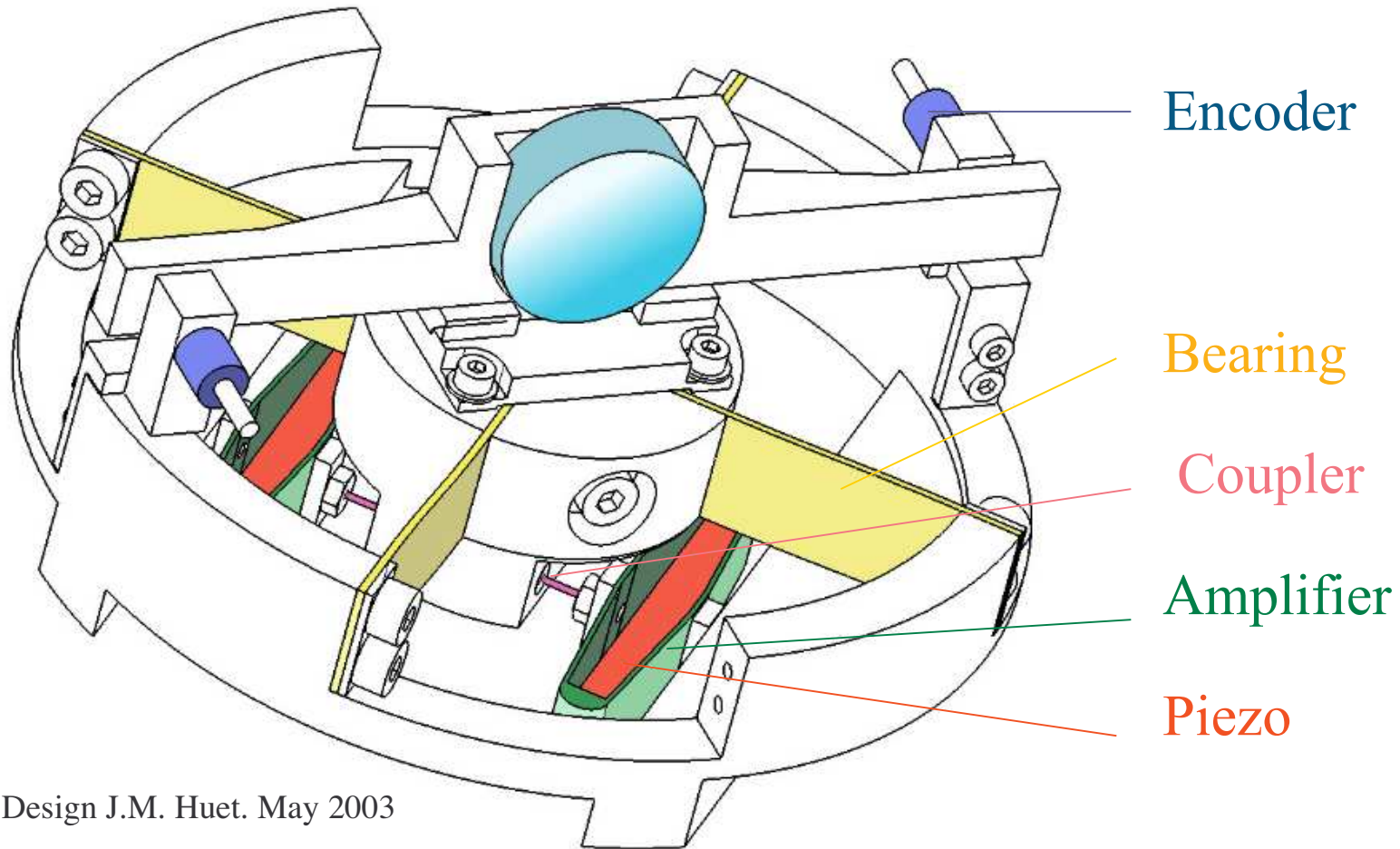
**BUT** : we confirm that the control electronics and the calibration of the system will be really difficult because :

- the time constant of the response cannot be lower than 5 mn
- the system still has some non-linearities

**However, the tests of control electronics are just beginning.**

**Accuracy of these first tests : about 60 arcsec where spec is 6 arcsec.**





Design J.M. Huet. May 2003



### Goal of this prototype :

- Test a proposal for all components of the product tree
- Get an estimation of system performances at 300 K
- Simulate and test the failure of the system (return to « Zero »)

### Limitation :

- Cannot be tested at 135 K. Would need adaptation of piezos.

### Schedule :

- Manufacturing-Assembly : september 2003
- Tests : october 2003