Review of Target Mechanics

Installation'98 - Testtank Measurements

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target group meeting
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Review of Target Mechanics

- Overview
  - Status of Target Installation
  - Testtank Measurement
    - Goals
    - Measurements
    - Summary

Status of Target Installation

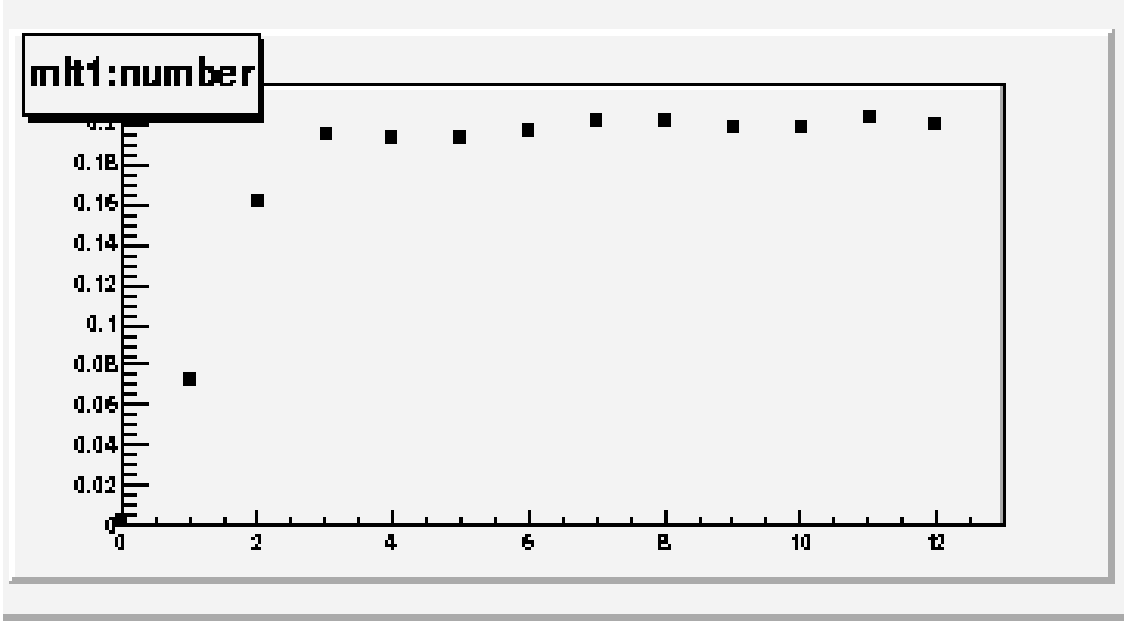
- All targets are installed in the vertexvessel
- All targets are moving
- No!, working relative endswitches
- Inner II wire is shorted to ground
  - ⇨ chargeintegrator not connected

Testtank Measurement

- Goals of the tests are to determine:
  - Precision of adjustments
  - Precision of movements
  - Repeatebility
- Test Renishaw feedback

Precision of adjustments

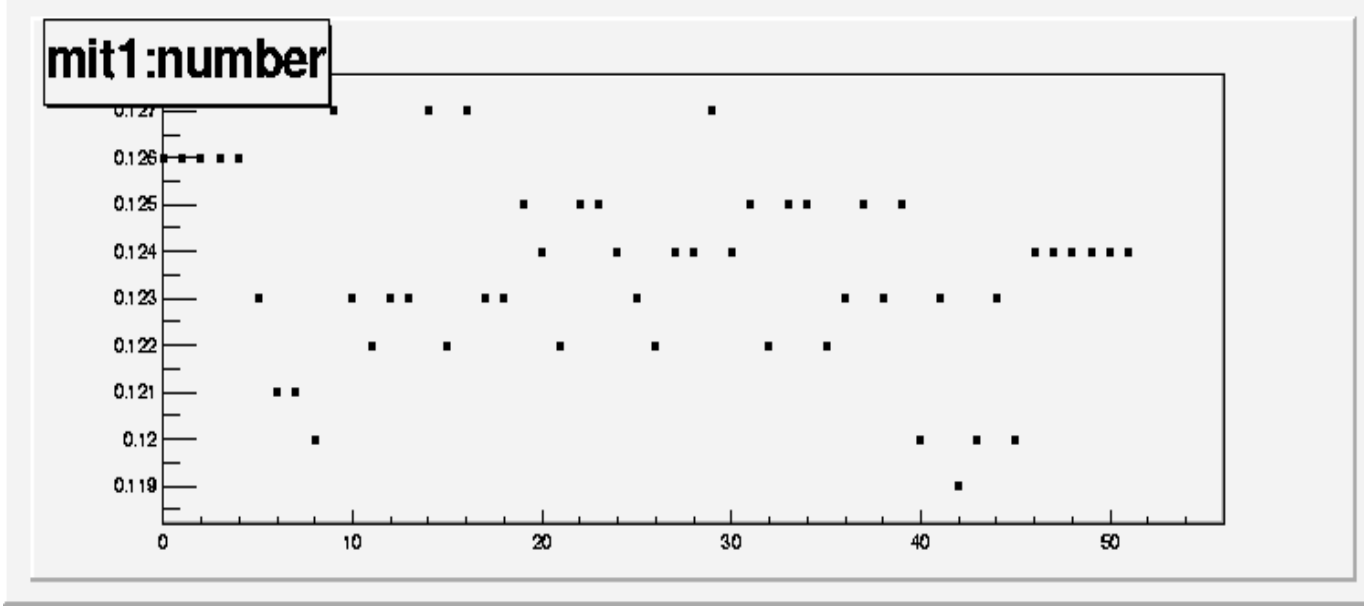
- Oscillations on theTarget Mechanics cause jumps of the mechanics about ~200µm



Play in y-direction of
Outer II

Precision of adjustments

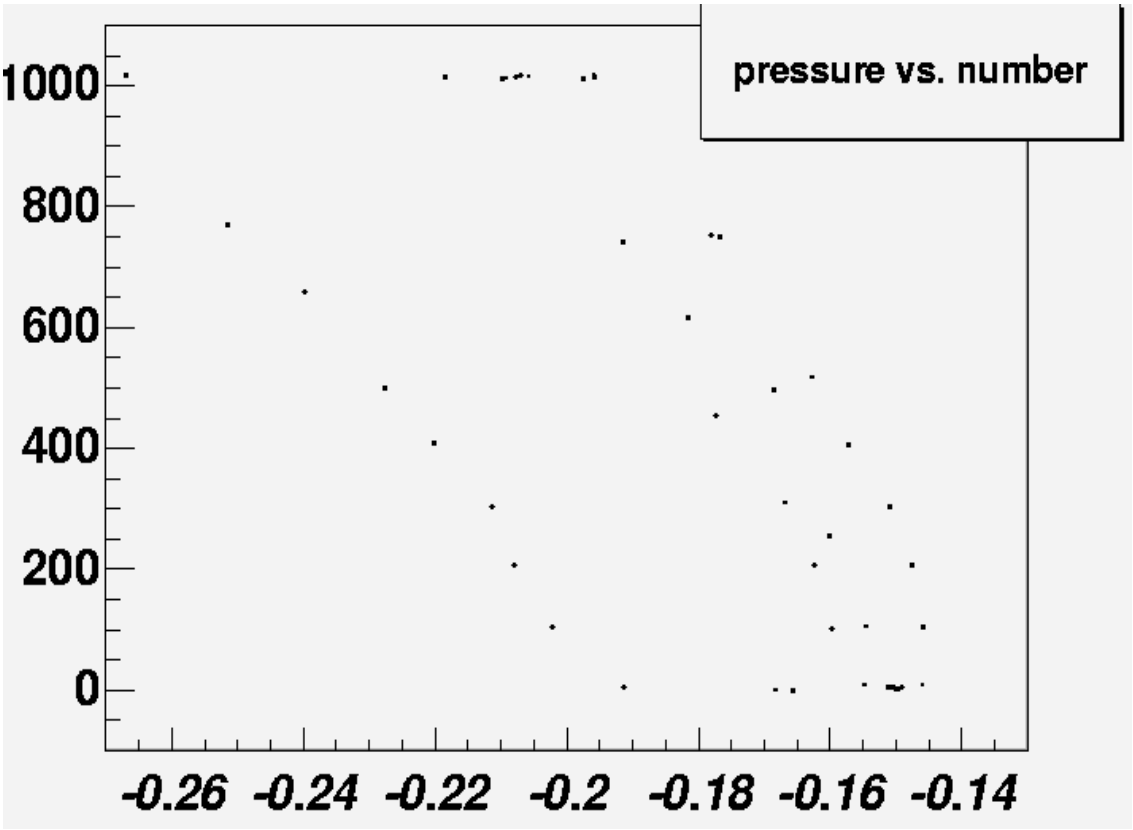
- After a while a target behaves like this y-Pos.±10µm



Inner II

Precision of adjustments

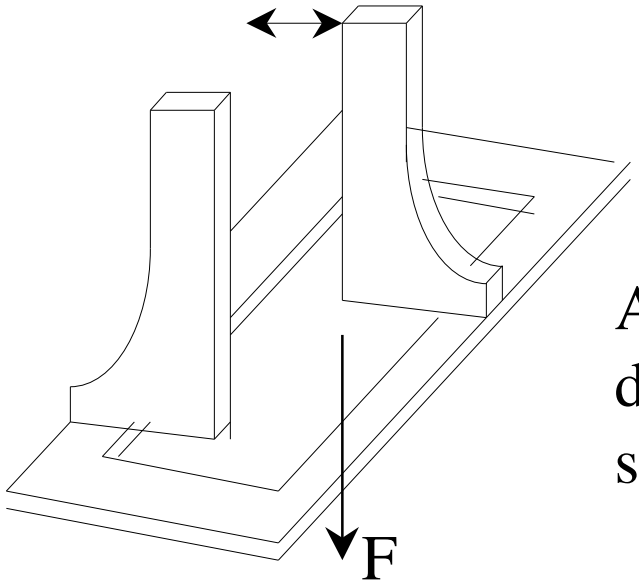
- An error in the same magnitude occures during the evacuateing of the testtank



Above II

Precision of adjustments

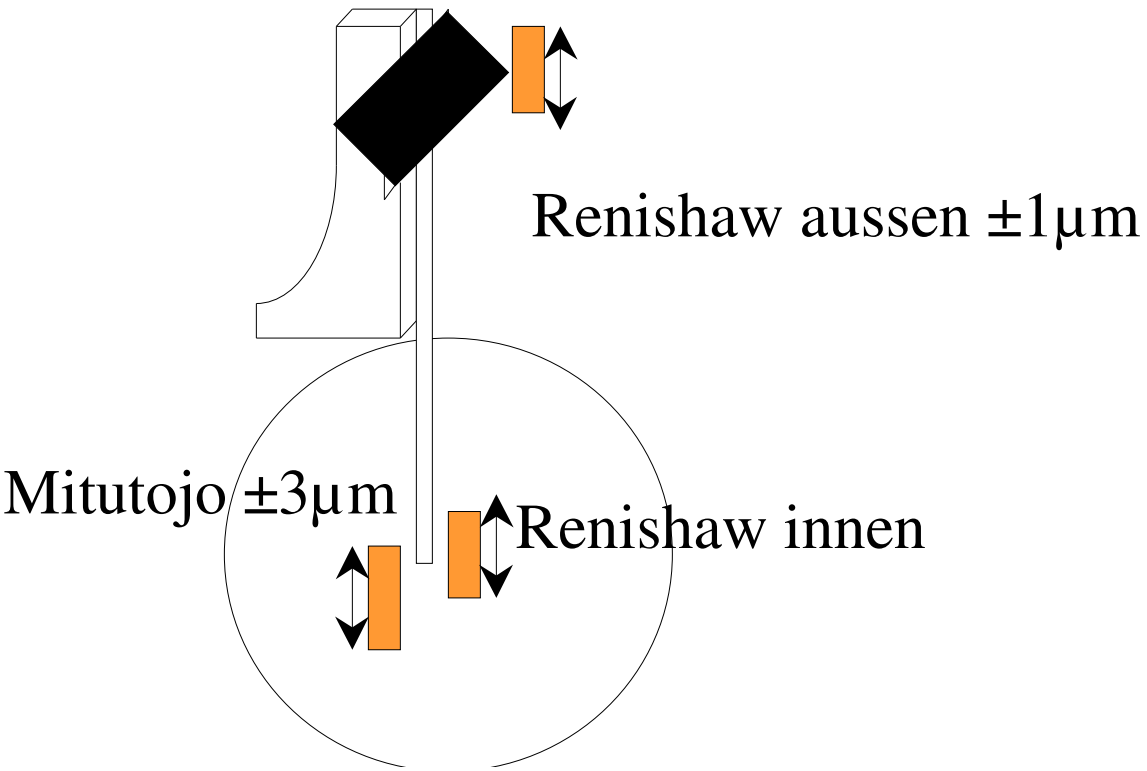
- The sagging of the Outer and Inner target ist in the magnitude of 1mm
- it was not possible to meassure the movement of the support structure during evacuateing 0±1mm



Assembly drawing of the support structure

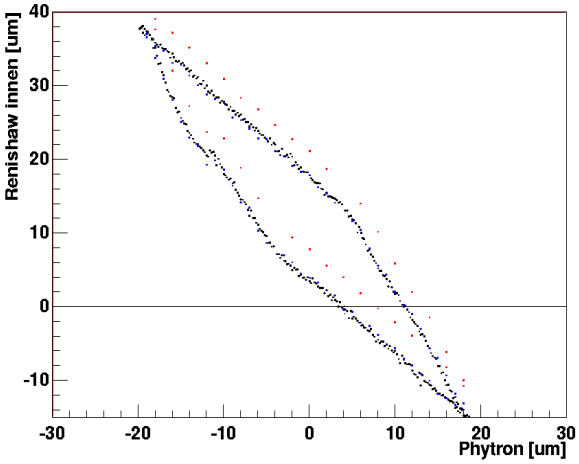
Precision of movements

- Overview
  - To meassure the precision of the target movements we have done several tests in our Testvessel with two targets (inner I, above II), with and without vacuum
  - With different devices:



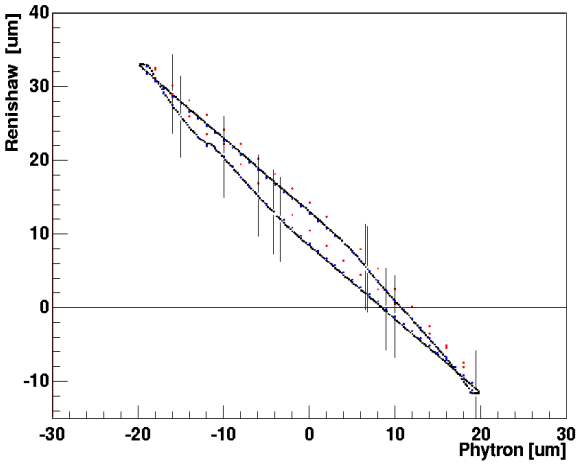
Repeatebility of target movements

- The same distance with three different stepsizes (above II):
  - meassured with Renishaw innen



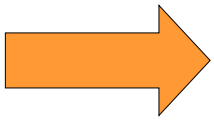
0.2/1/2µm Steps, with vacuum

  - meassured with Renishaw aussen



Problem for above II

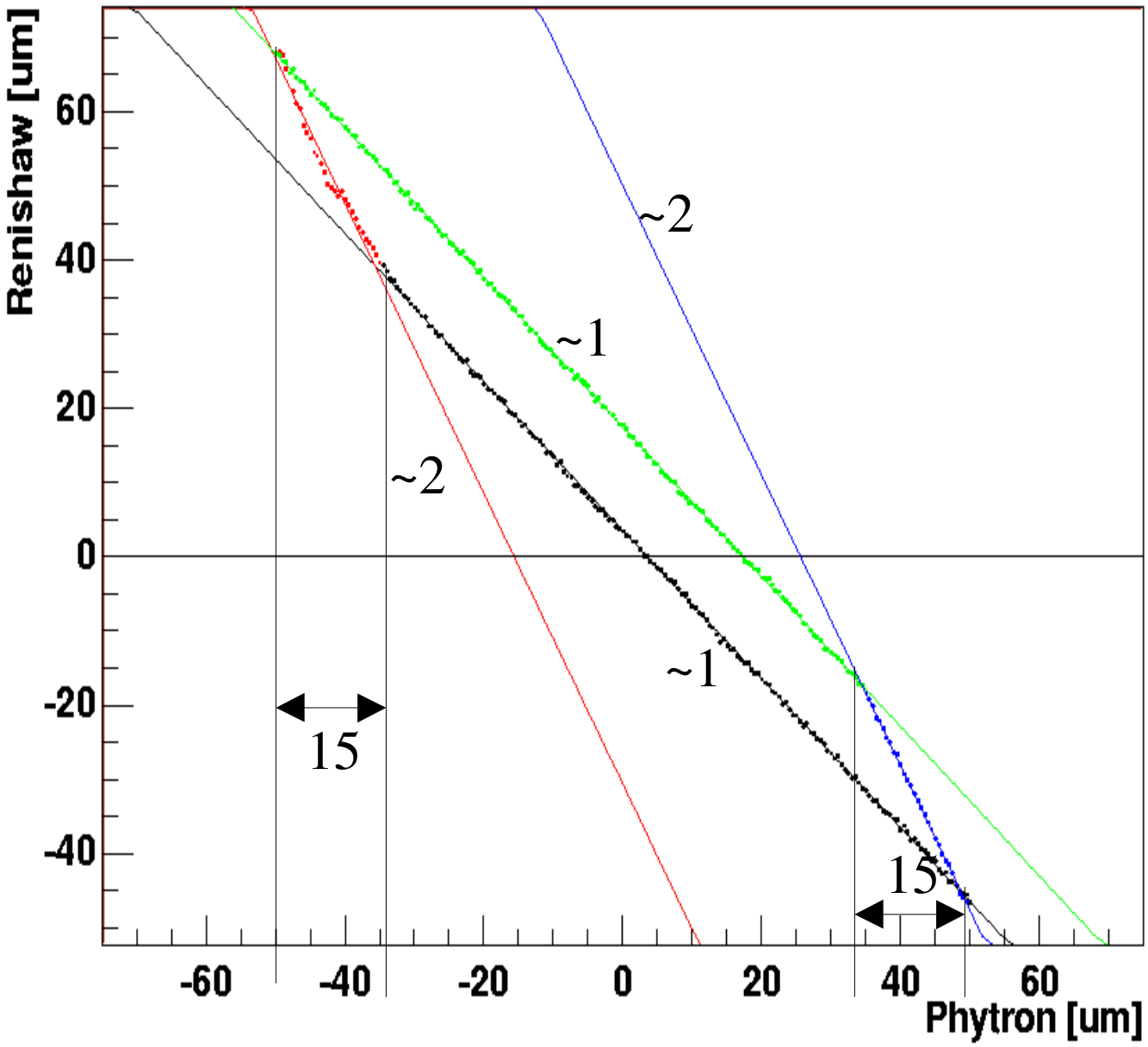
- Different steepnesses
  - when the direction changes the steepnes is 2 after ~15µm (with vacuum) it decreases to 1.5
- Play of the spindle
  - the play of the spindle ~1.5µm is only with vacuum visible (oposite we expected!!!)



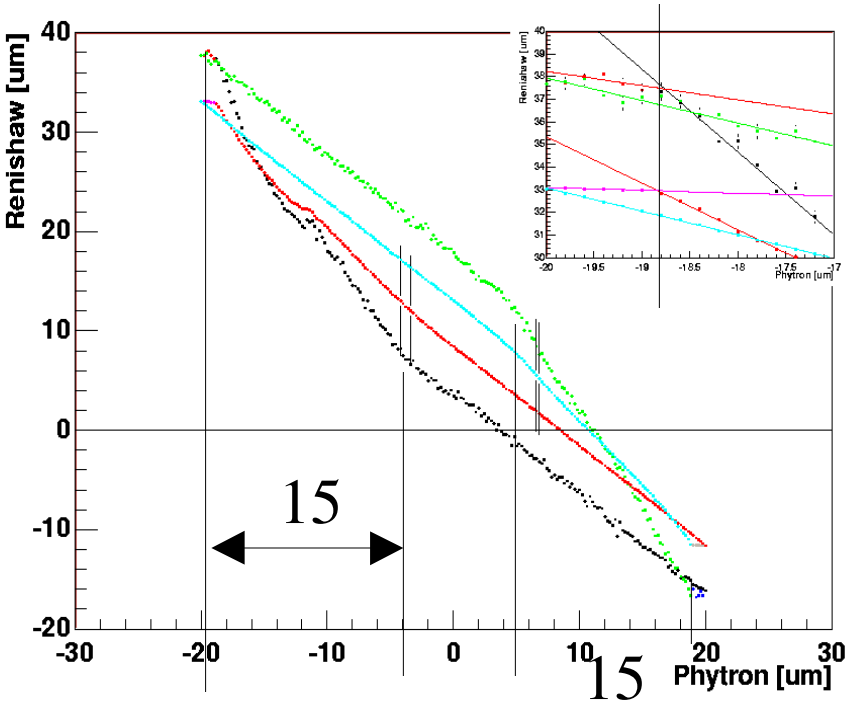
If Renishaw innen and aussen are proportional, there is a chance to use these values to steer the target

Different steepneses

100µm in 0.5 µm steps



Play of the spindle

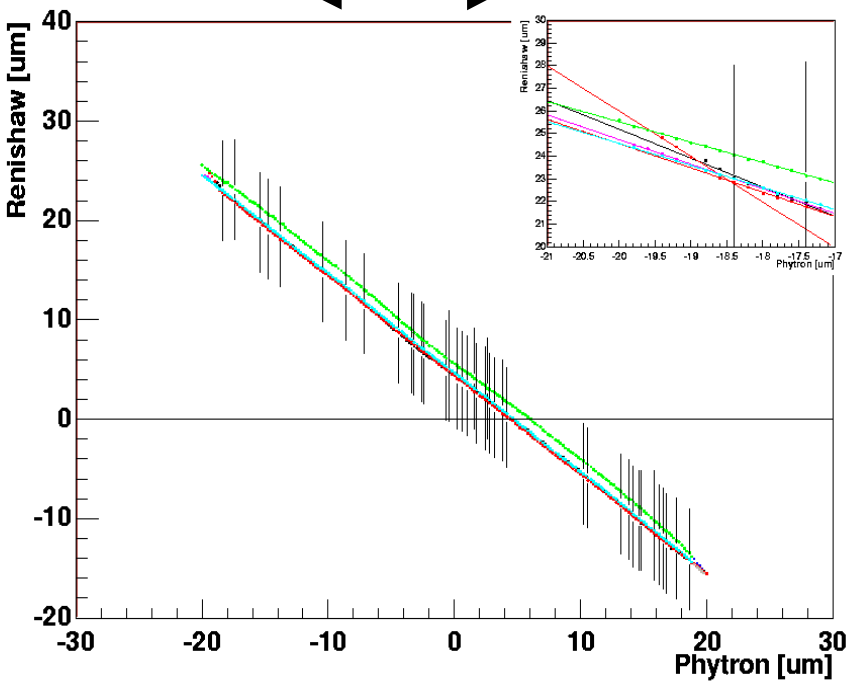


Vacuum

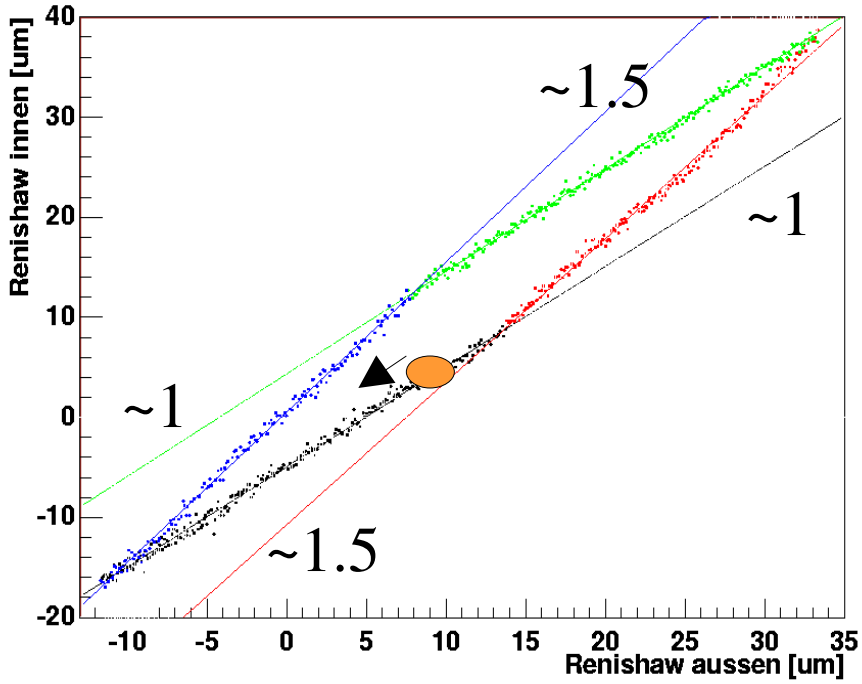
40µm in
0.2 µm Steps

15

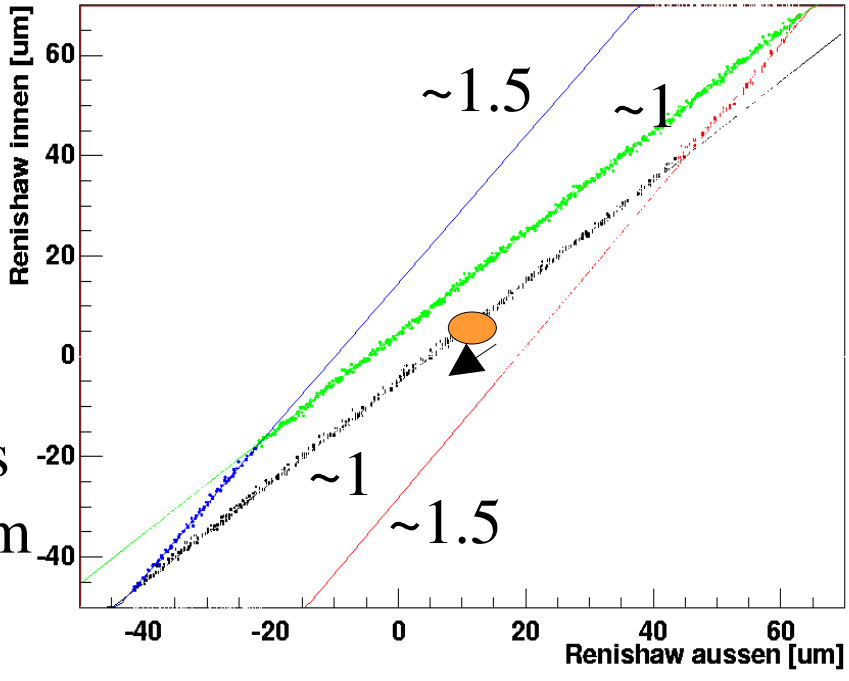
No
Vacuum



Renishaw innen vs. aussen

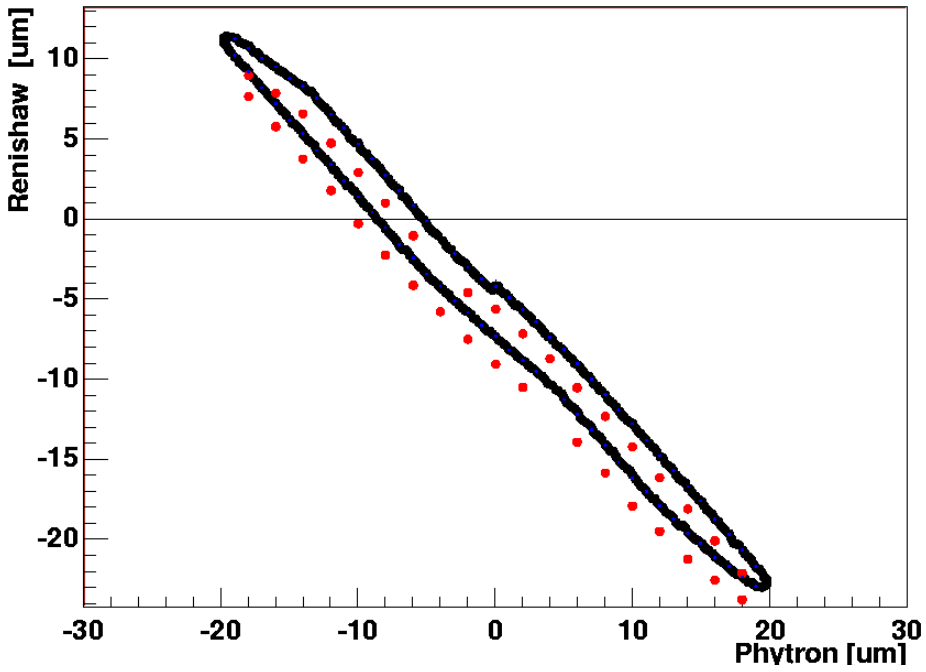


40µm in
0.2µm steps
with vacuum

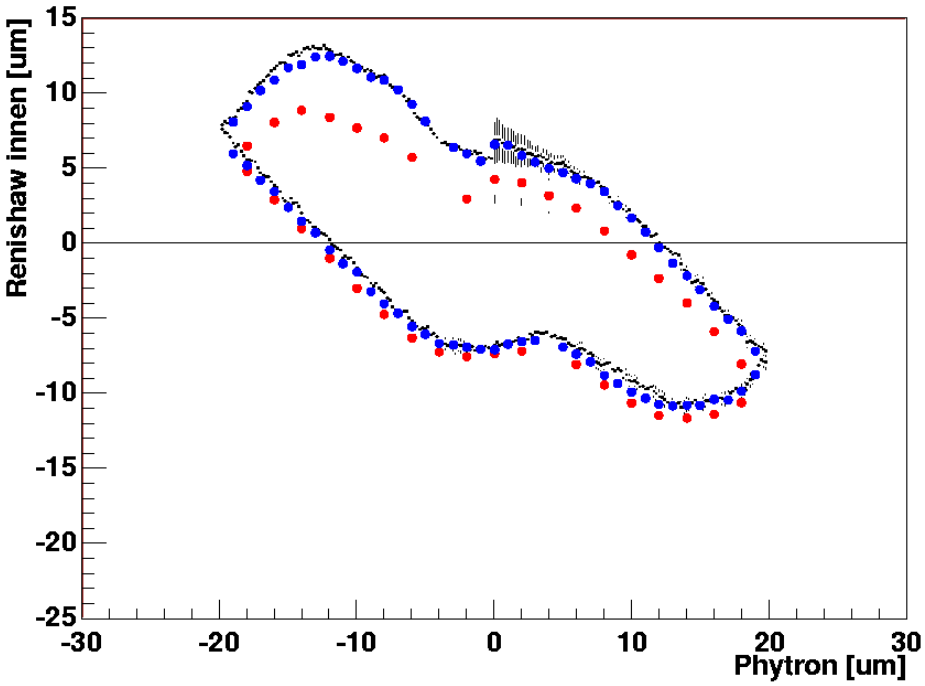


100µm in
0.5µm steps
with vacuum

Inner I - Repeatebility

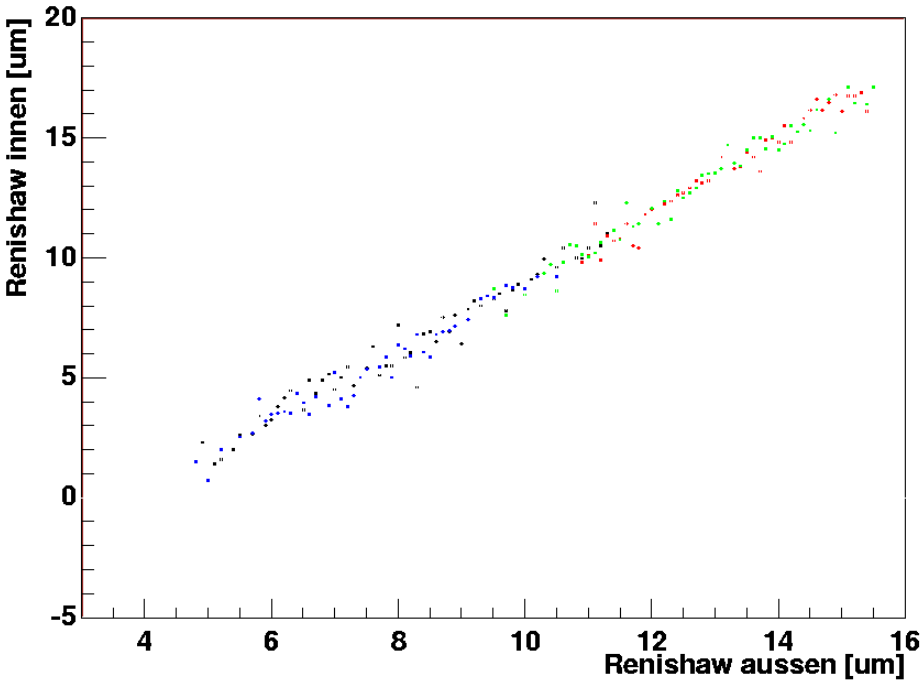


ausssen
0.2/1/2µm
Steps,
with vacuum



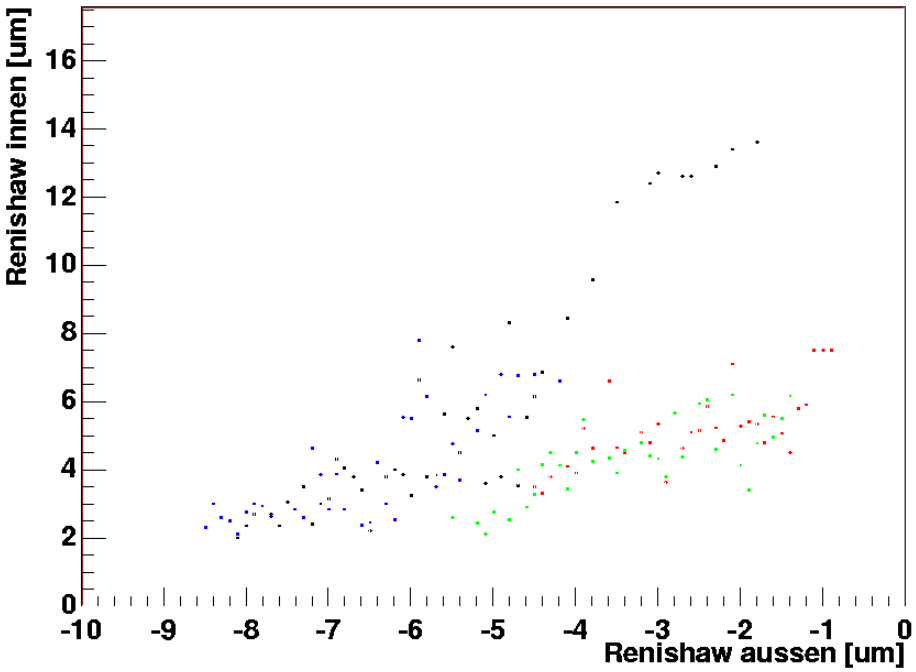
innen
0.2/1/2µm
Steps,
with vacuum

Renishaw feedback



Above II

8µm in
0.2µm steps
with vacuum



Inner I

8µm in
0.2µm steps
with vacuum