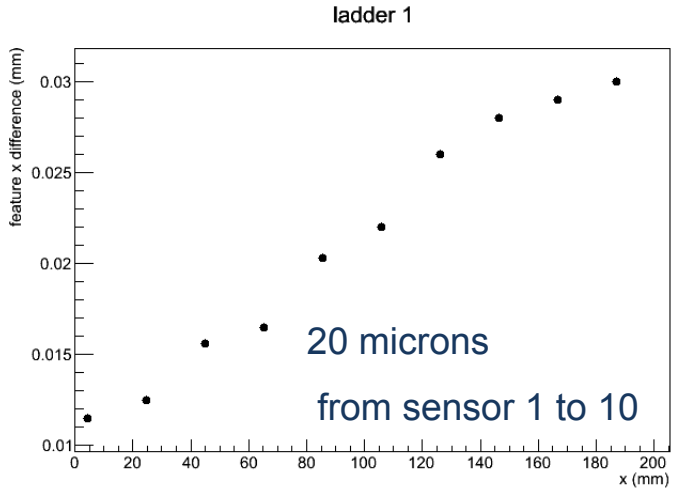
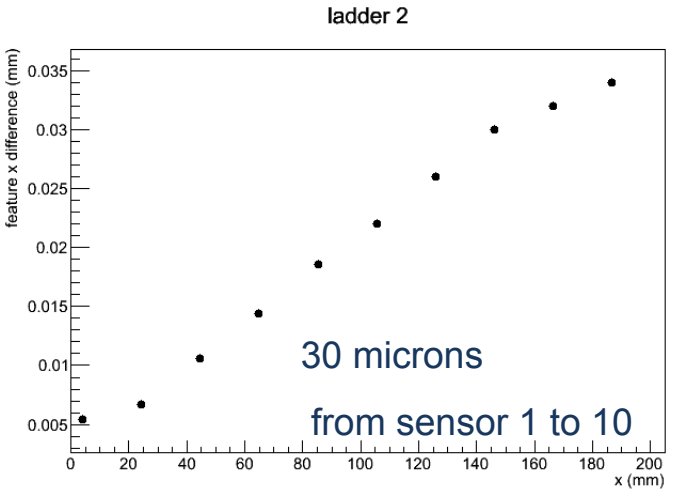
PIXEL Survey Update

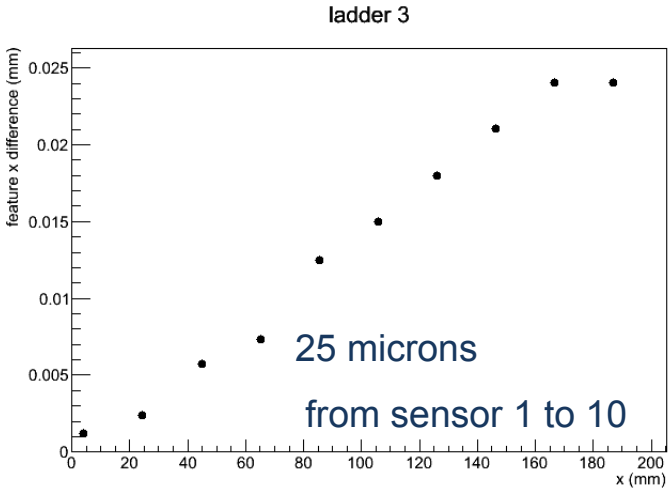
Qiu Hao

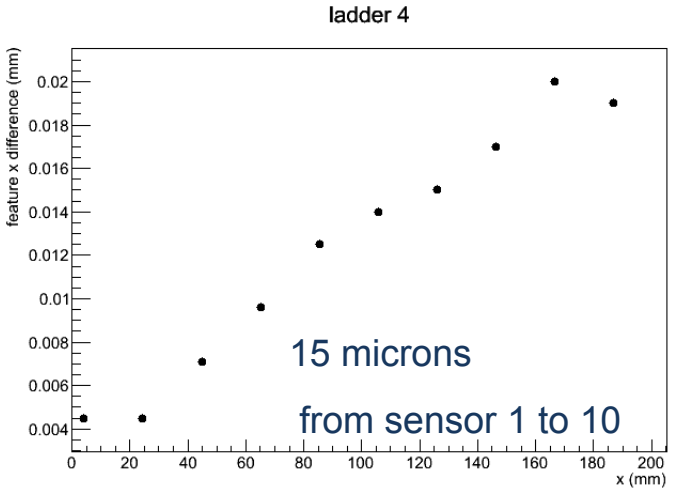
- follow up update 0319, 0326
- ladder extension and contraction
- sector and sensor don’t change

The Ladder Extension



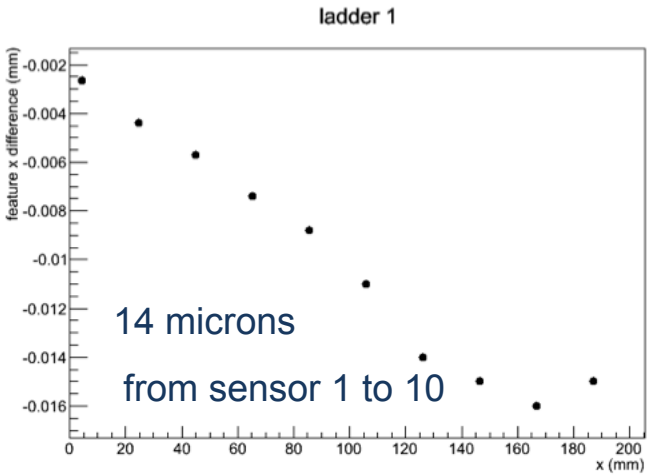


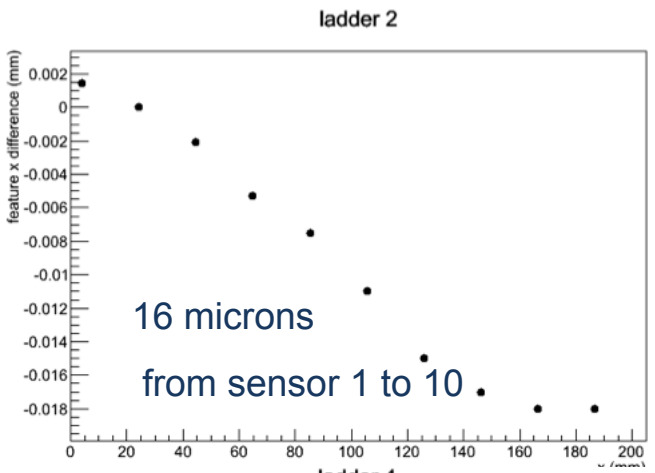


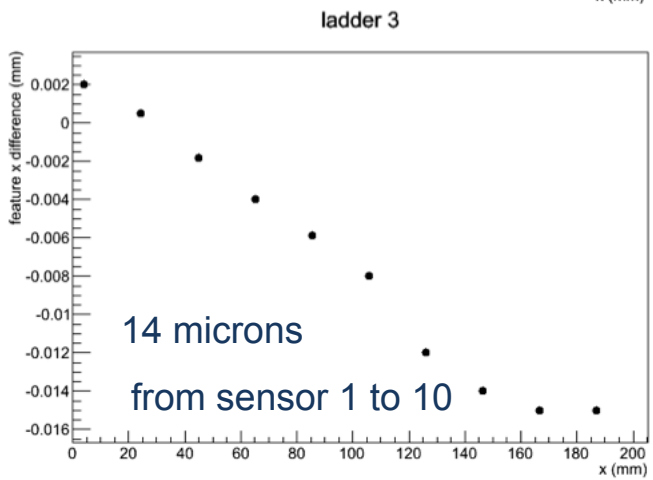


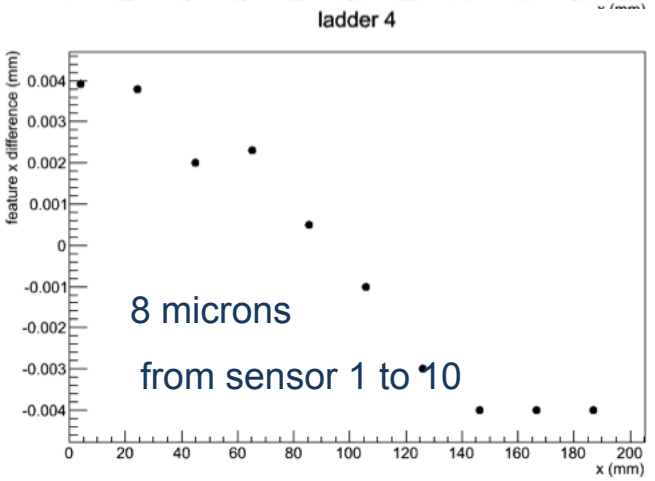
- Mar 19 - Jan 29
- Slope of difference in local x direction can not be explained by error for tooling ball measurement
- All ladders “grows” longer, but at a little different ratio (7e-5 ~ 15e-5)

The Ladder Contraction



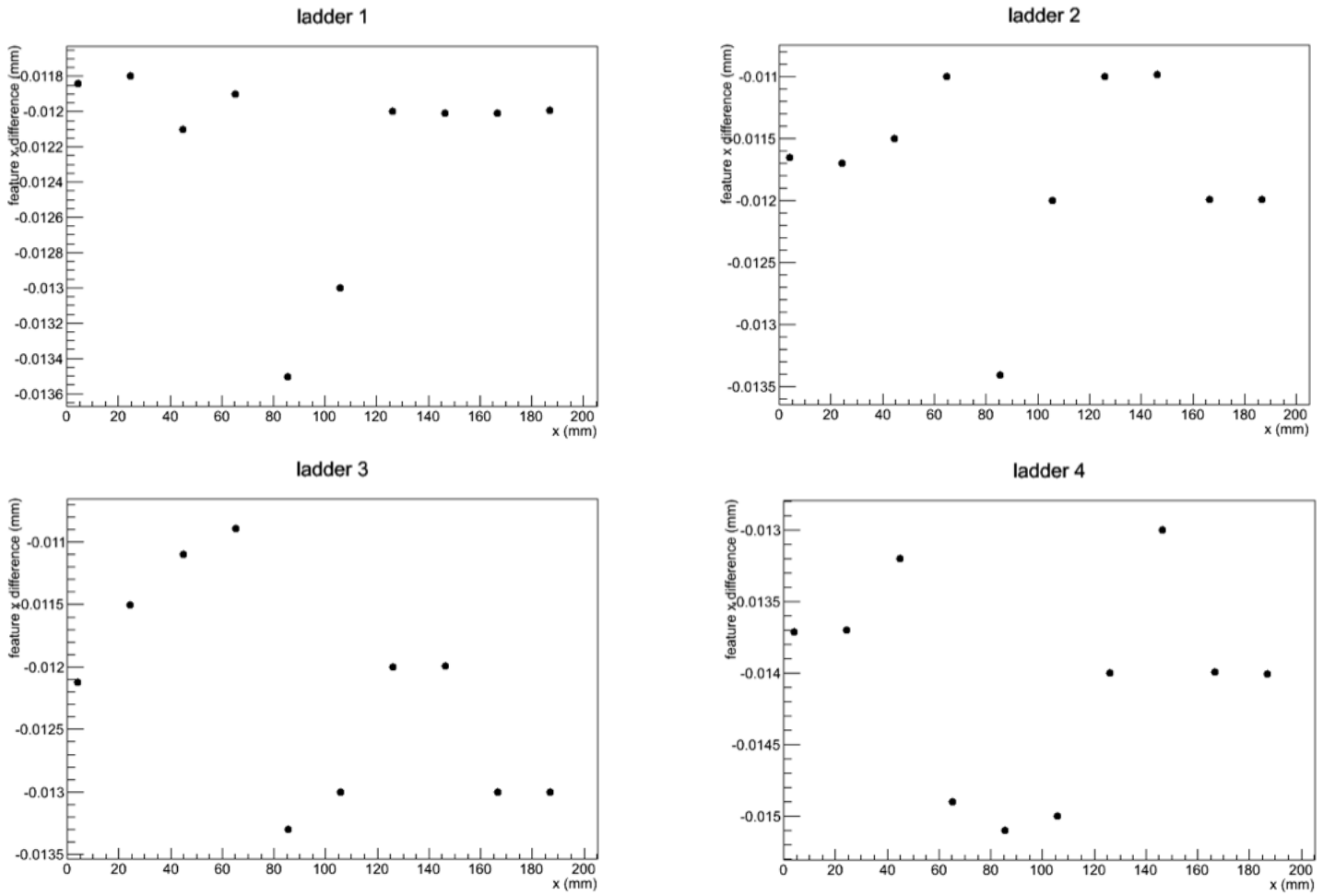






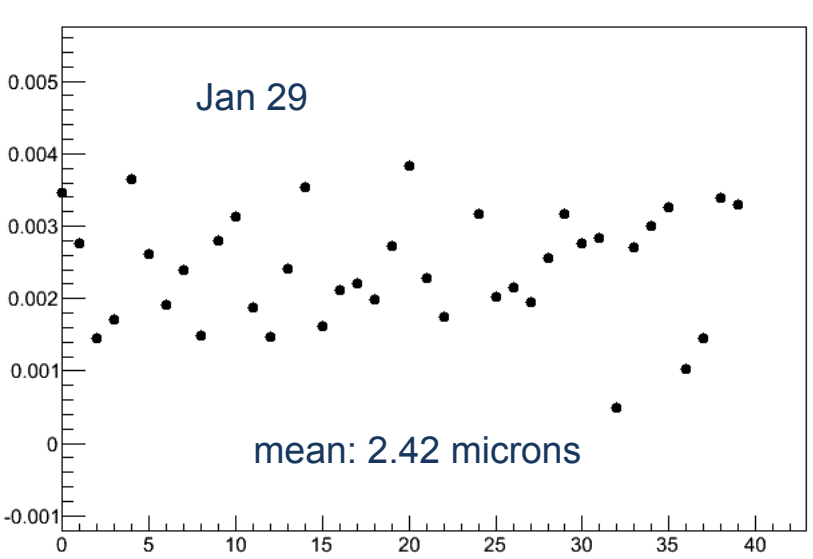
- April 05 – Mar 19, sit in a tube during the days between
- All ladders get shorter

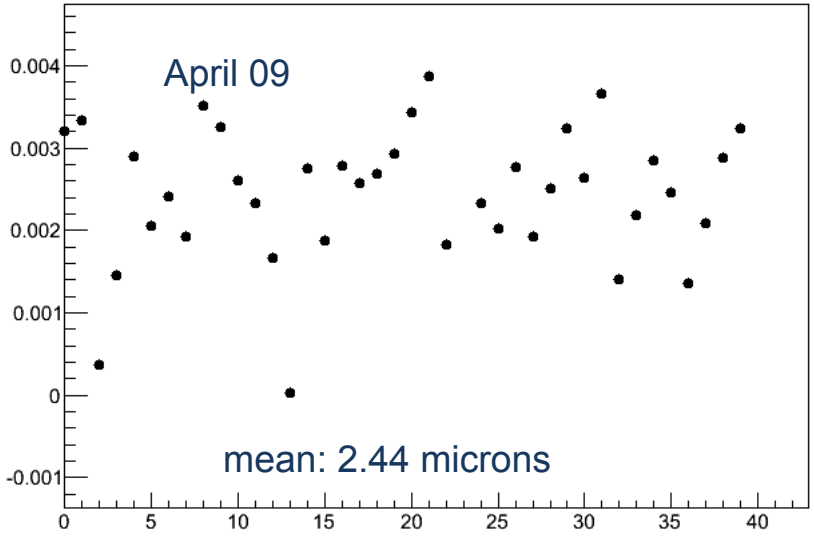
No Apparent Change with Dehydrant



- April 09 – April 05, sit in a tube with dehydrant
- No large deformation

Feature Distance within a Sensor





Measured distance – designed distance vs. sensor Id

- The difference of the mean between the two measurements are barely noticeable << the ladder extension

Tooling Ball distance

- Processing ballDistances.C("sector01_0129")...
- 385.925
- 385.924
- 385.924
- Processing ballDistances.C("sector01_0319")...
- 385.925
- 385.926
- 385.923
- root [1] .q
- Processing ballDistances.C("sector01_featureOnly_0405")...
- 385.927
- 385.927
- 385.925
- root [1] .q
- Processing ballDistances.C("sector01_featureOnly_0409")...
- 385.928
- 385.927
- 385.923

- distances between tooling balls at the 2 ends of sector
- measured 3 times per run
- changes with 2 microns << ladder extension and contraction

In Summary

- Ladders change length, first growing longer, then getting shorter, at ~20 microns scale.
- Sensors and sectors length don’t change.
- All ladders goes in the same direction during the same time period, at not quite the same ratio, pointing to some material and environmental issue.
- We don’t know the reason yet, dehydration in several days comes with no visible effect.
- The local z also changes and (in update 0326) may be related. But I think length is more easy to understand as the first step.

Thank you

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