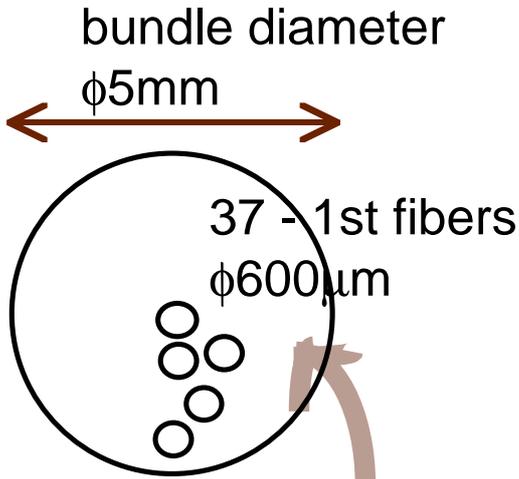


1. BEAM PROFILE

Flat beam intensity distribution in space is required, for each 1st fiber to get the same input .

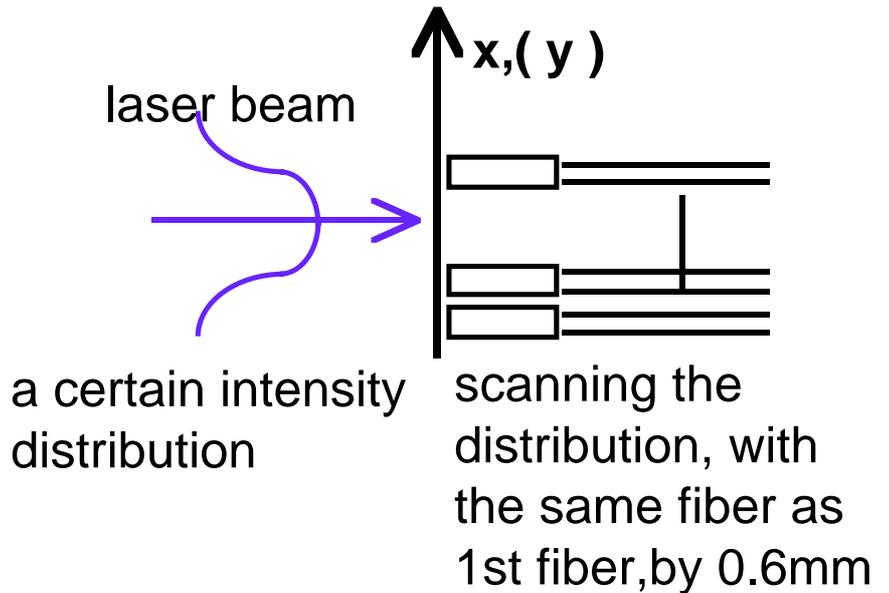
End view of 1st bundle



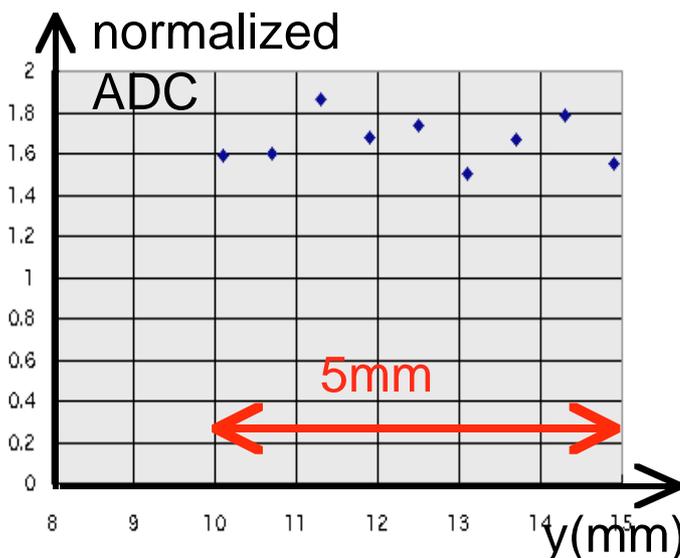
need to know this region's beam profile

optical set up

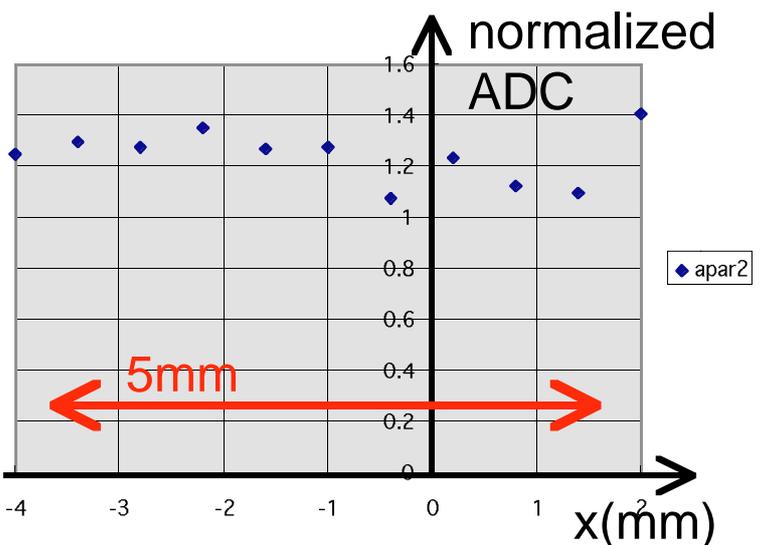
expander, diffuser on beam line



vertical scanning



horizontal scanning



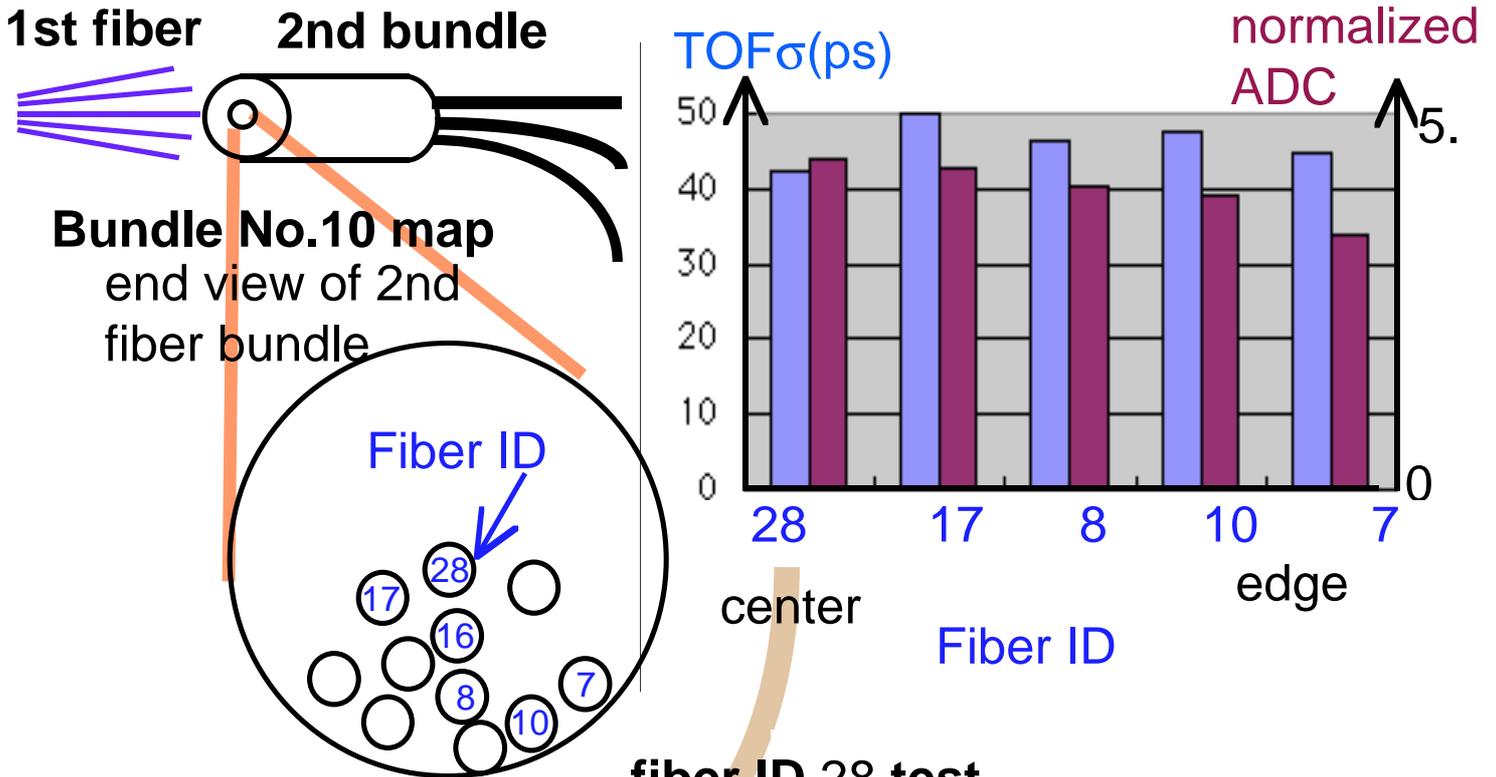
At center of 5mm of both axes, intensity distribution is flat within 10%.

Time resolution depends on ADC. Calibration system needs a beam profile which is flat within the 1st bundle diameter. Our optical setup can realize this condition.

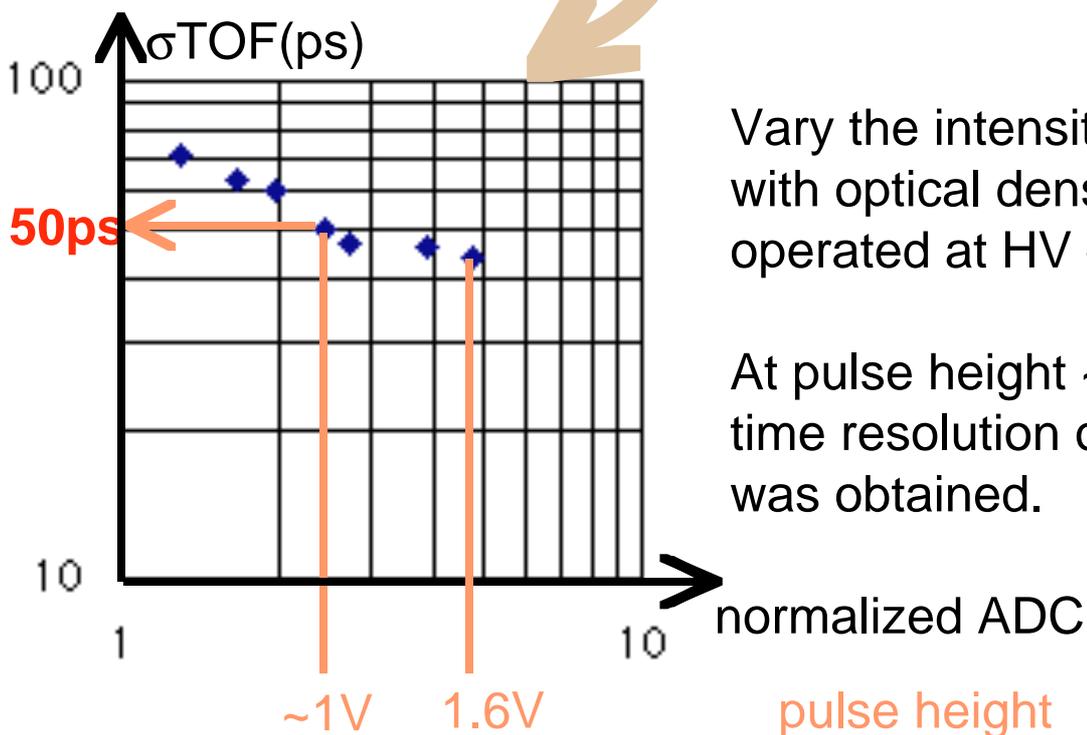
2. 2nd Bundle Test

Output of 1st fiber has intensity distribution in space, $N.A.= 0.2$.

Time resolution depends on intensity, so difference of time resolution between fibers at center and edge is predicted. The distance between 1st and 2nd bundle is optimized to reduce the difference between center and edge.



fiber ID 28 test

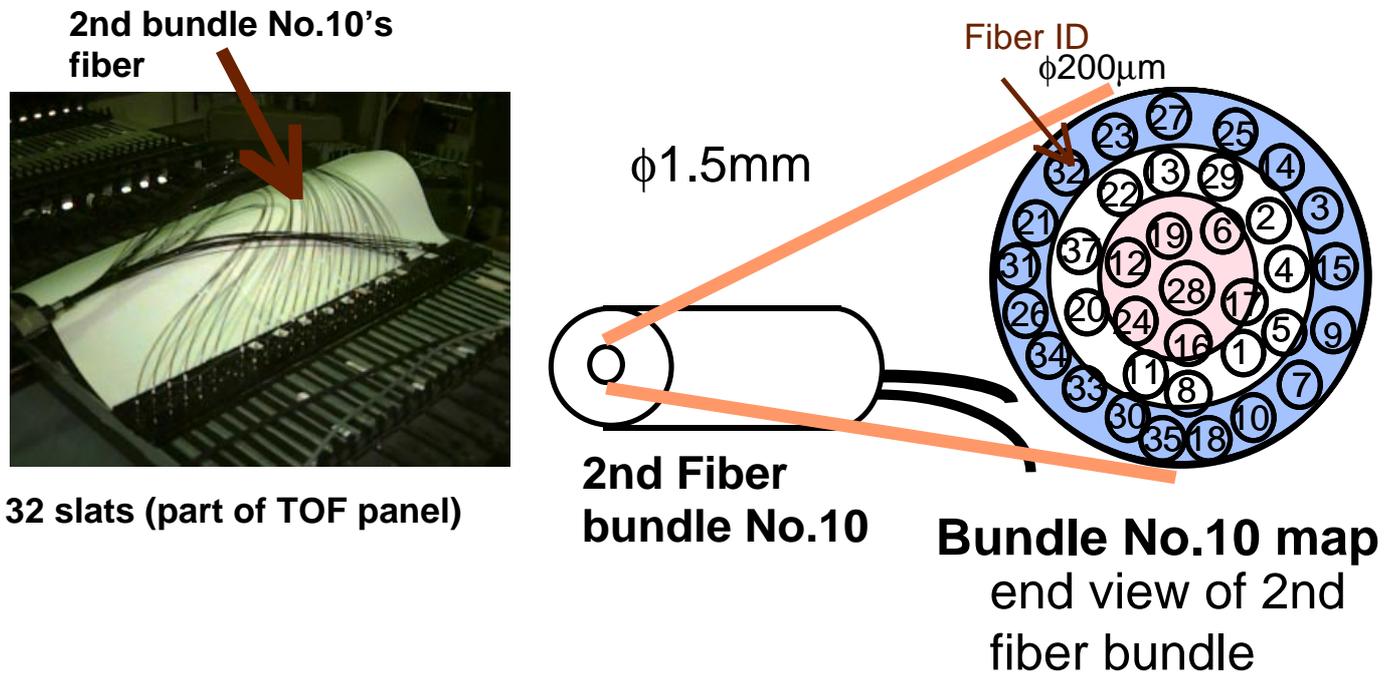


Vary the intensity of laser with optical dense filters, operated at HV -1800V.

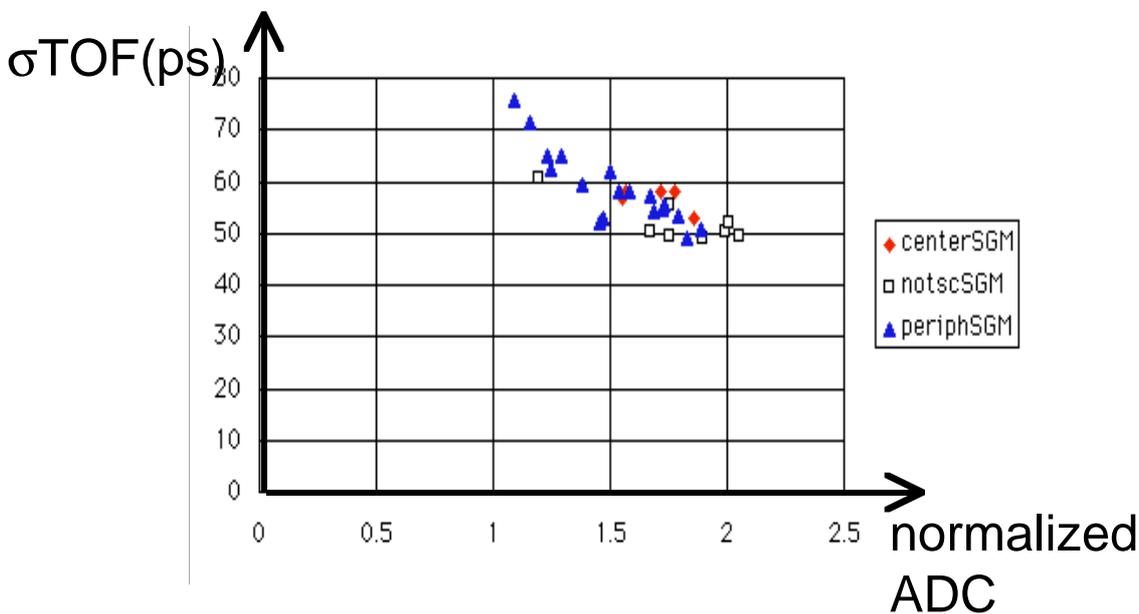
At pulse height ~1V, time resolution of **50ps** was obtained.

3. 2nd bundle tested on TOF panel

Time resolution is required less than 85ps.



Time resolution distribution



- Put fibers on 32 TOF slats of panel.
- Time resolution **49ps~76ps** was obtained, better than 85ps, obtained in WA98 .
- By comparison of these values, time resolution of this system is enough to monitor TOF counter.
- The distance between 1st fiber and 2nd bundle needs to be optimized.