



R&D for CDC upgrade

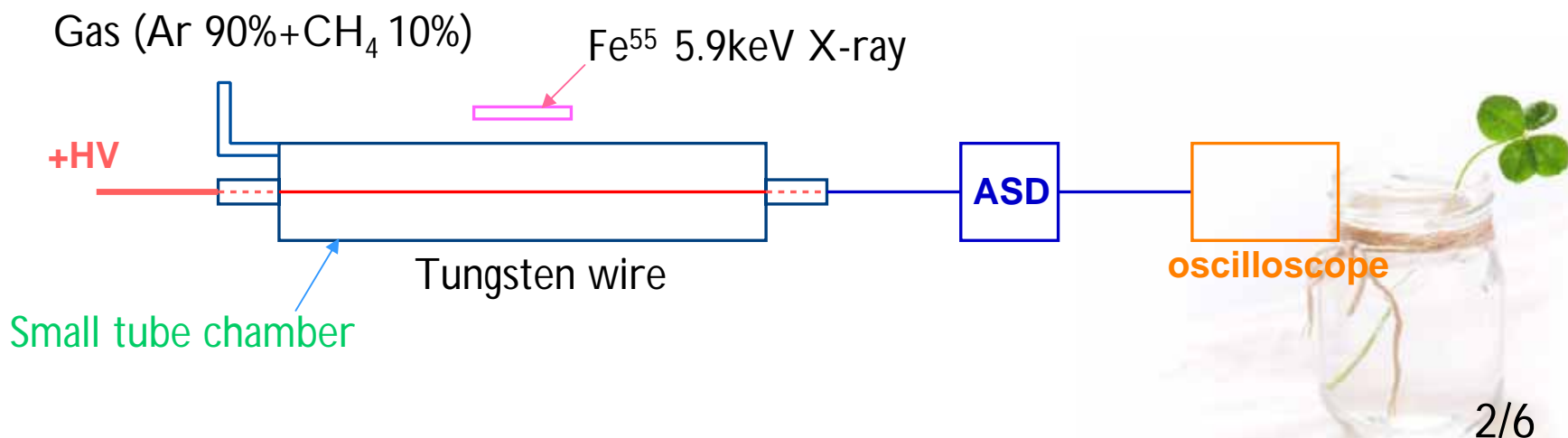
Nanae Taniguchi

CDC Meeting

Dec 11th 2008

Introduction

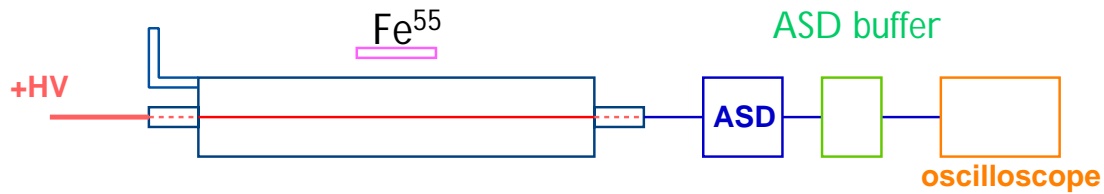
- Test three type of Amp Shaper Discriminator (ASD)
 - ASD used by Belle
 - ASD used by ATLAS
 - ASD developed by ASIC group of KEK
- Check signal shape using oscilloscope



Introduction

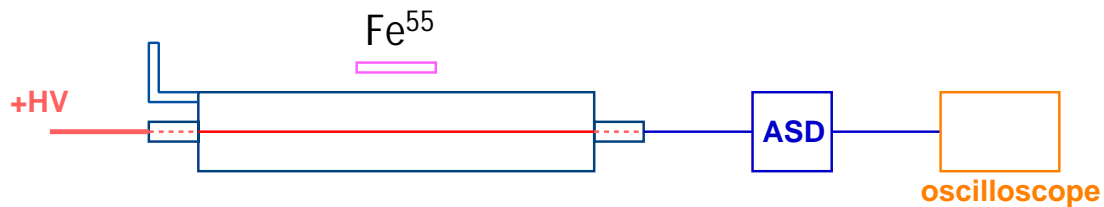
ATLAS-ASD

- Pre gain 0.8 V/pC , main x 7

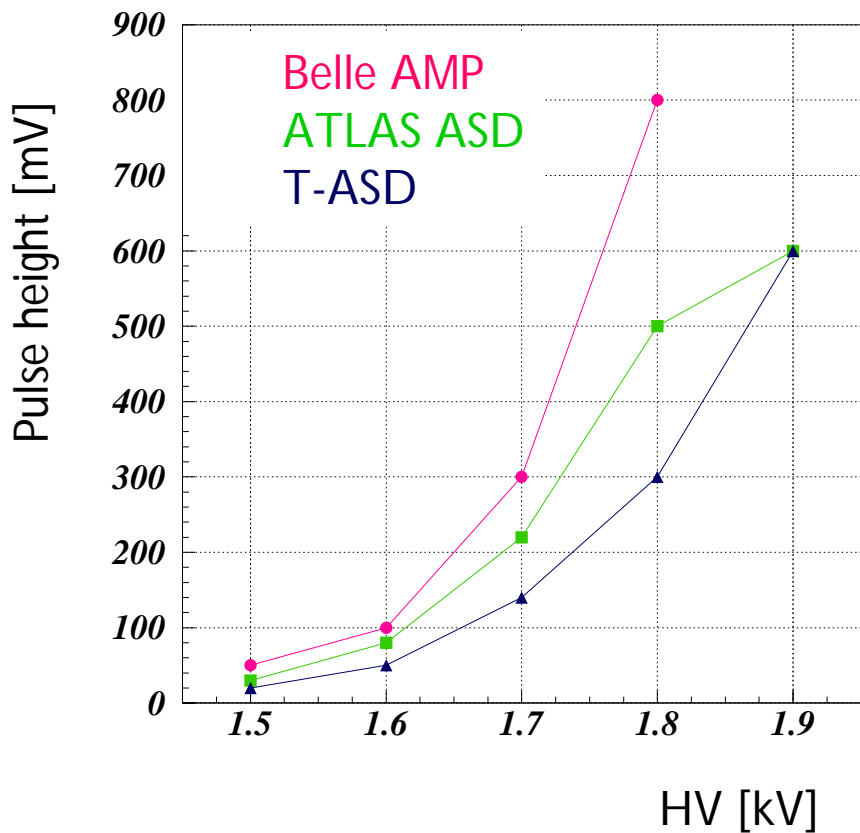


T-ASD (Taniguchi-san, ASIC group)

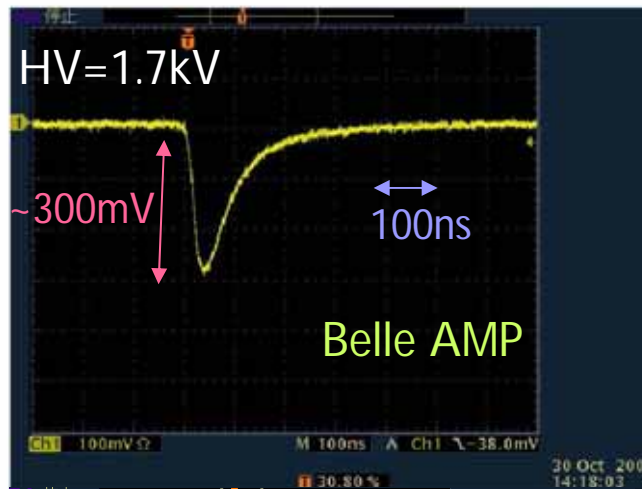
- ~ 7V/pC



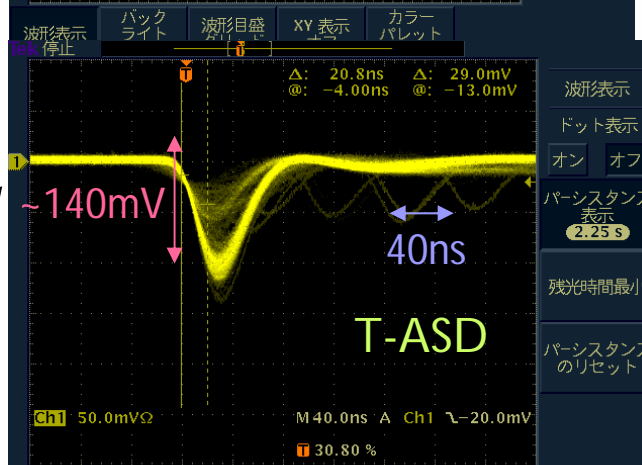
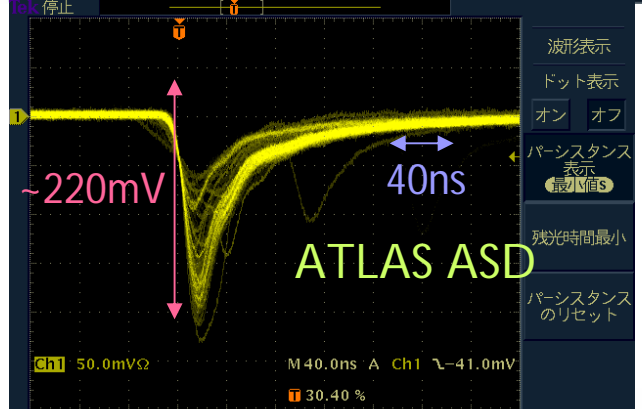
Comparison



Single shot

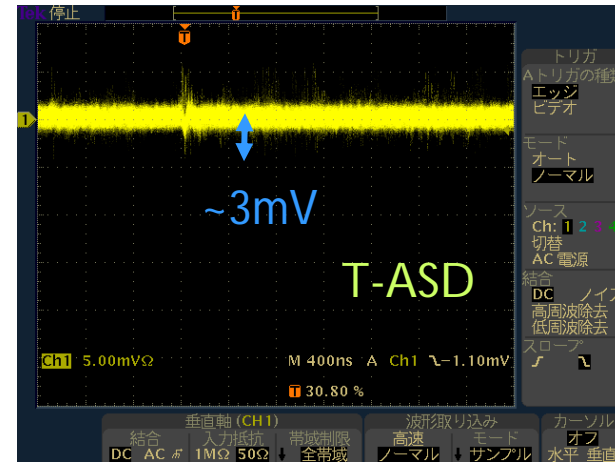
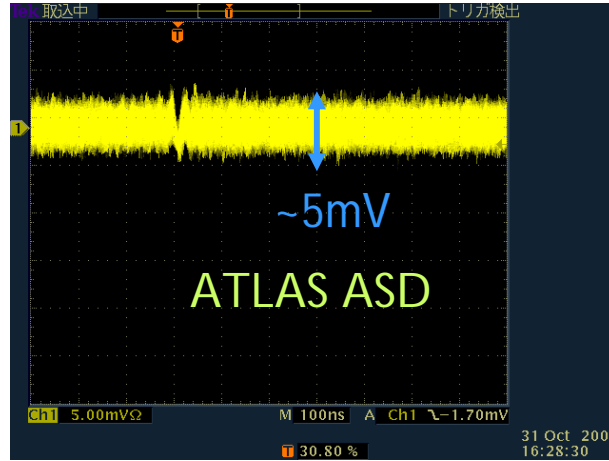
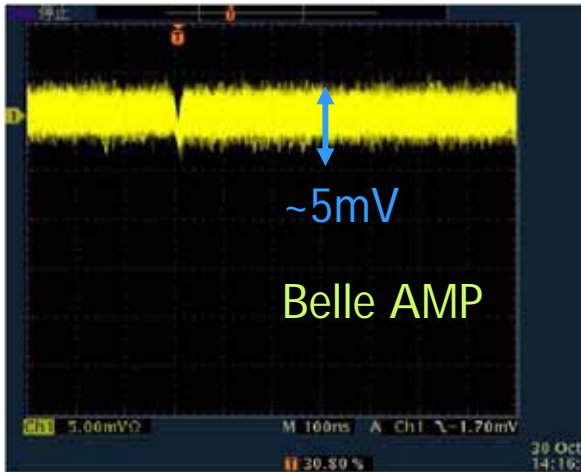


Overlay mode

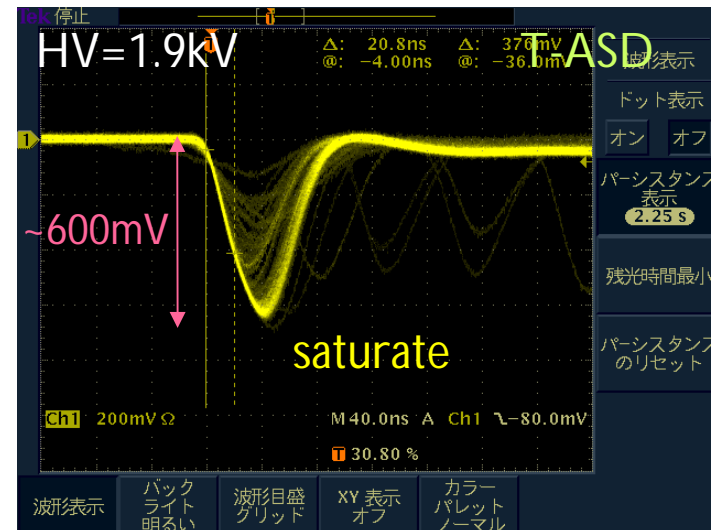
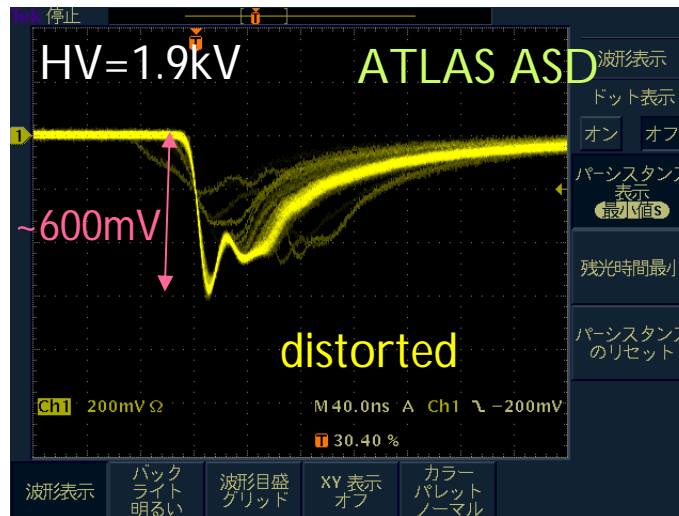


Comparison

Noise level



Saturation



Conclusion

- ☪ Gain : T-ASD is smaller (0.6 x ATLAS ASD, half of Belle AMP)
 - ☪ Noise level: T-ASD is smaller
 - ☪ Resolution : T-ASD seems to be better than ATLAS ASD
 - ☪ Rise time is ~ 20 ns for ATLAS ASD and T-ASD
 - ☪ Saturation : ~ 1.9kV
-
- ☪ Beam test using test chamber and new ASIC chip ~ Apr, 2009

