

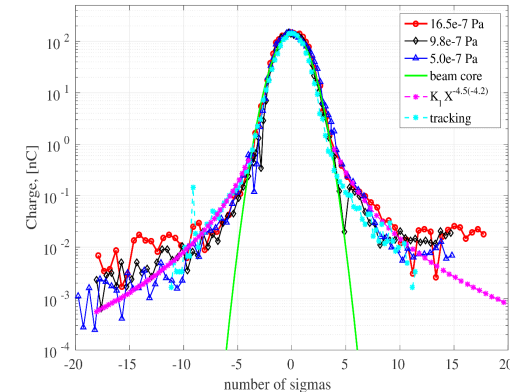
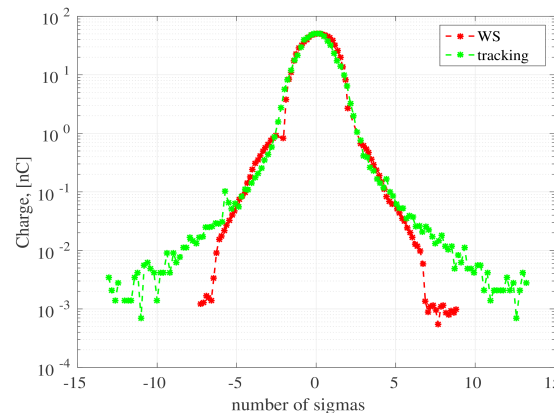
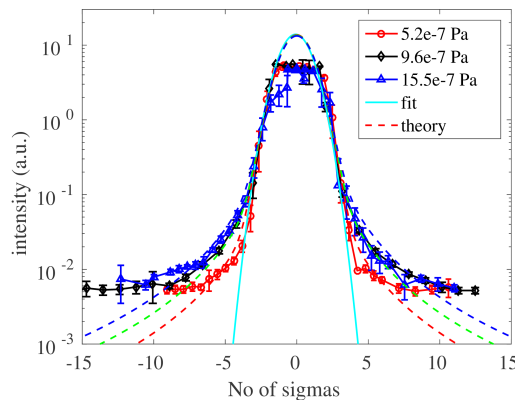
Investigation of beam tail/halo at Accelerator Test Facility of KEK*

Beam tail/halo is known as a major cause of beam loss and radioactivation in collider, also induces background for high precision particle experiment.

However, the mechanism of halo formation in storage ring (DR) isn't well known.

Here we show that

- 1) Transverse beam tail/halo at different locations along ATF2 visualized by YAG, WS and DS
- 2) Vertical beam halo is mainly caused by elastic beam gas scattering DR indicated by analysis estimation, simulation (SAD) and measurement
- 3) Horizontal beam profile measured in 2016 is higher than the prediction by elastic scattering theory with 2 order of magnitudes;



Conclusion:

- Vertical beam halo in DR is mainly caused by elastic beam gas scattering
- Horizontal beam halo could be a result of elastic beam gas scattering and IBS
- Monitor of beam profile with different storage time and beam loss in DR is proposed