Minutes of RESULTS, PITZ Physics Seminar, 2018-04-12

Project: PITZ
Participants: F. Stephan, M. Gross, M. Krasilnikov, O. Lishilin, H. Huck, R. Niemczyk, G. Loisch, Y. Chen, J. Hinkel, S. Weisse, A. Oppelt

1) Agenda

1. AOB
2. H. Huck: Image Filtering at PITZ

2) Results:

1. Computer cleaning kit now is available in the control room, use it!
2. H. Huck: Noise filtering is crucial for a proper emittance measurement (especially for the slit-scan method, as the signal intensity is low). A proper background subtraction is important for fitting signal; an improperly subtracted background will result in wrong rms estimation. Even with a proper noisecut, an ideal Gaussian noise results in a wrong rms, if the signal-to-noise ratio is low. Improper background leads to systematic rms overestimation. Noise inhomogeneity studied for EMSY1. The noise is higher for higher gain levels. Several Noisecut algorithms were compared. Matlabs tools are written for SLEM. New f4_1 filter is recommended for emittance measurement (yelds 10% higher values). The matlab tools can in future replace the emwiz tool. Reasonable noisecut threshold is steel needed.

Protocol prepared by
O. Lishilin