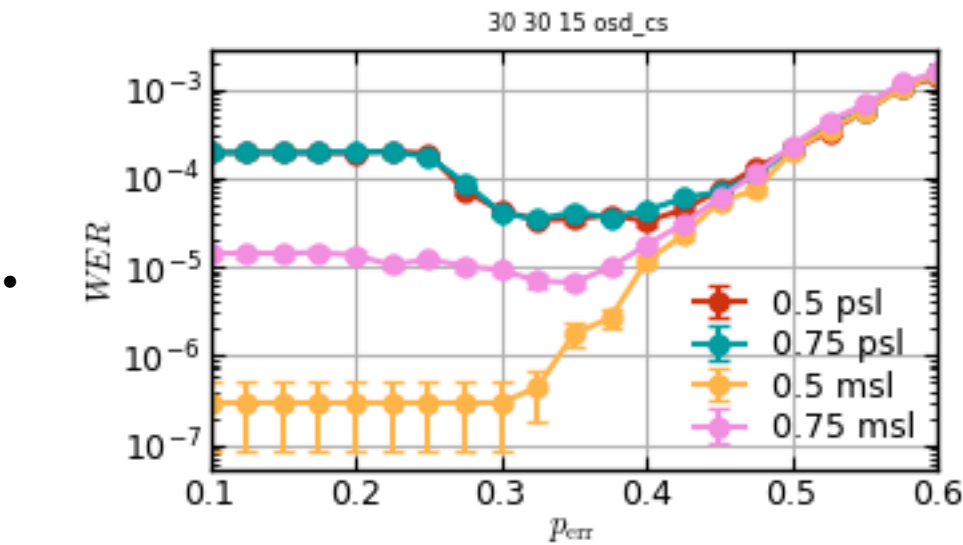


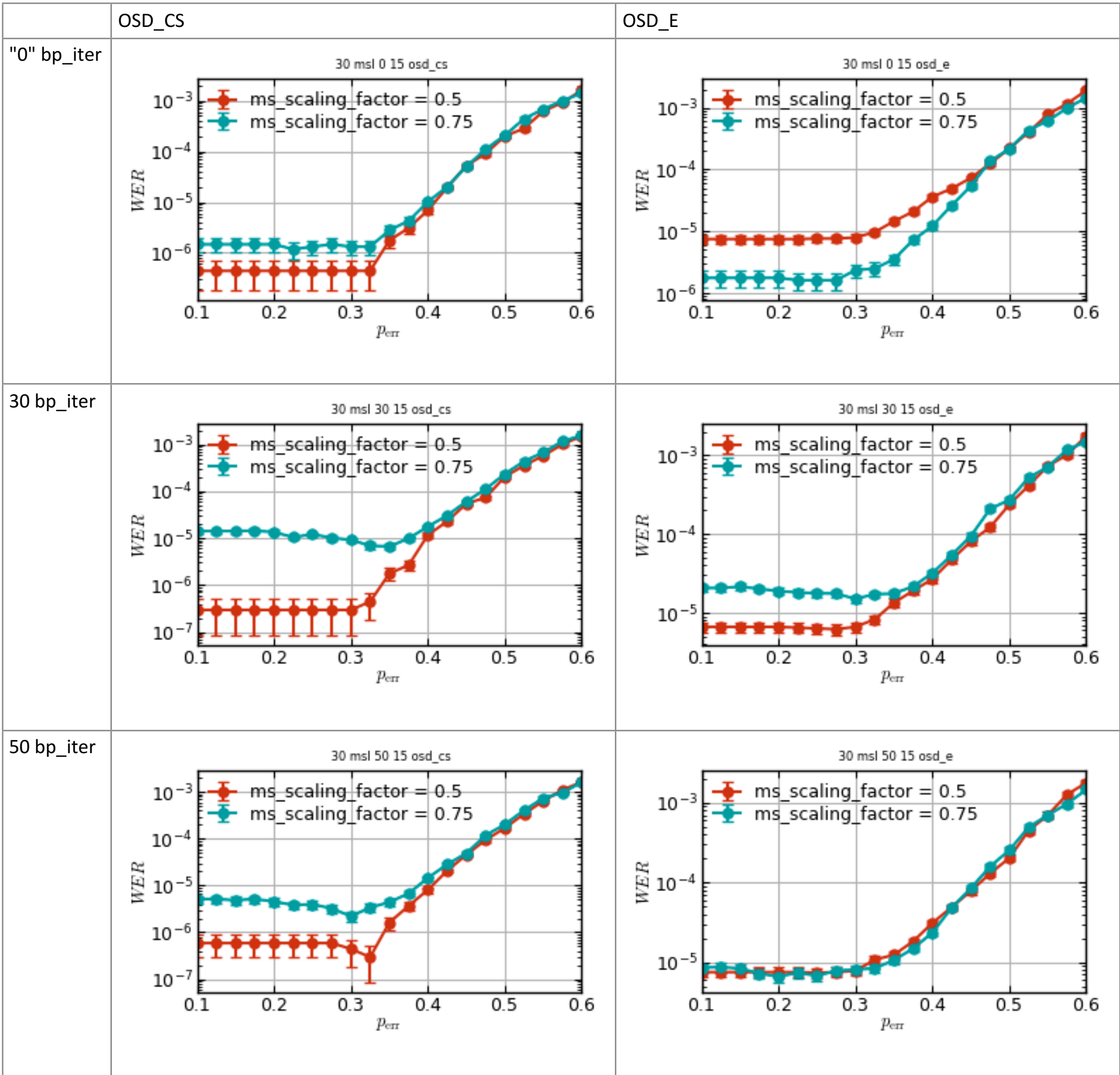
A comparison of BPOSD Settings

Thursday, 13 July 2023 17:08

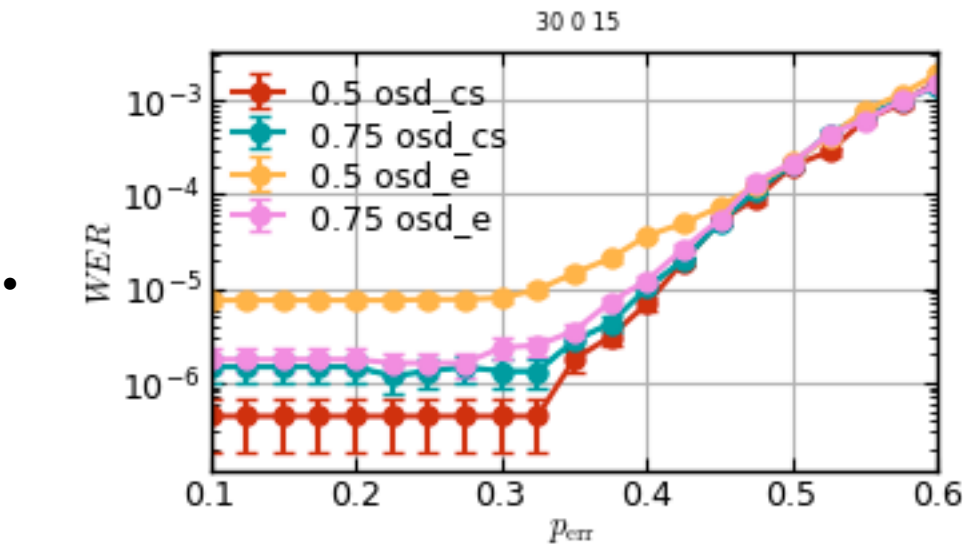
- Choosing Product Sum does not work well for Analog Tanner Graph Decoding with LDPCv1. It hits an error floor once sigma (labeled as p_err below) is below ≈0.4
- This is tested with a lifted product code with lift parameter 30, 30 bp iterations, and OSD CS setting OSD_order = 15, [30 30 15 osd_cs]



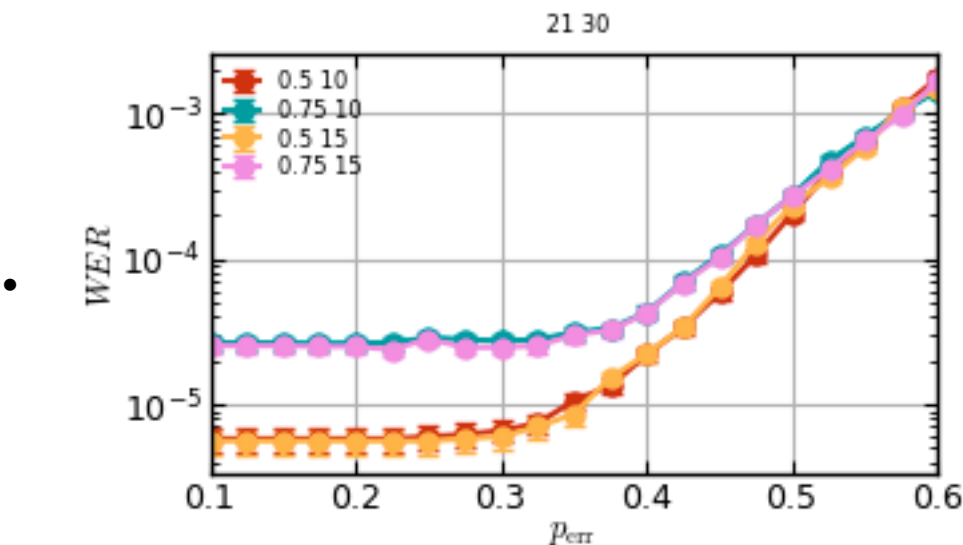
- Which scaling factor is the best will depend on other parameters, see some example plots here. The titles should be read as [lift_parameter bp_method bp_iterations osd_order osd_method]



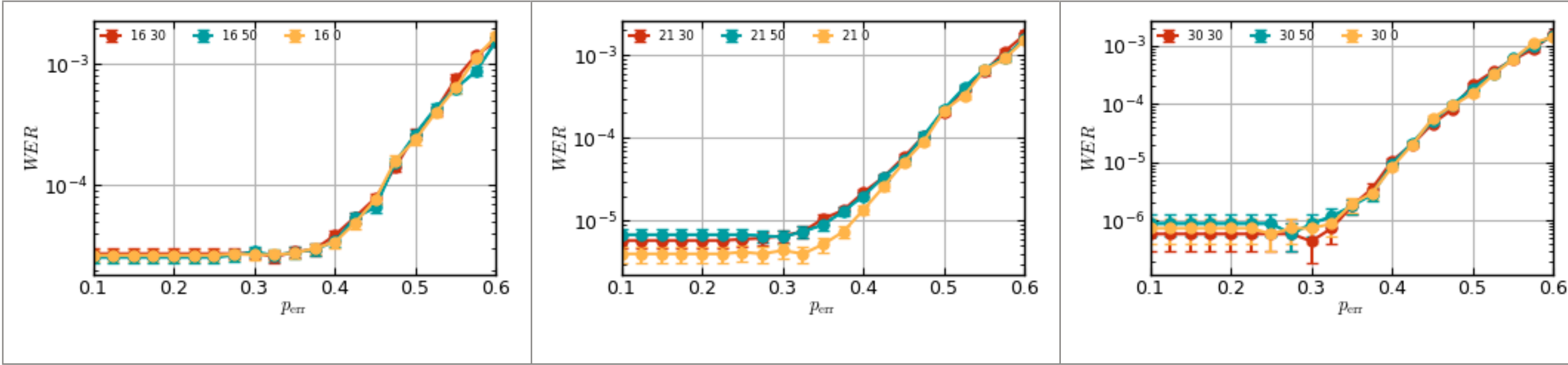
- Comparing different cases, OSD_CS + MS Scaling = 0.5 is the winner: [lift_parameter = 30 bp_iterations = 0 ord_order = 15]



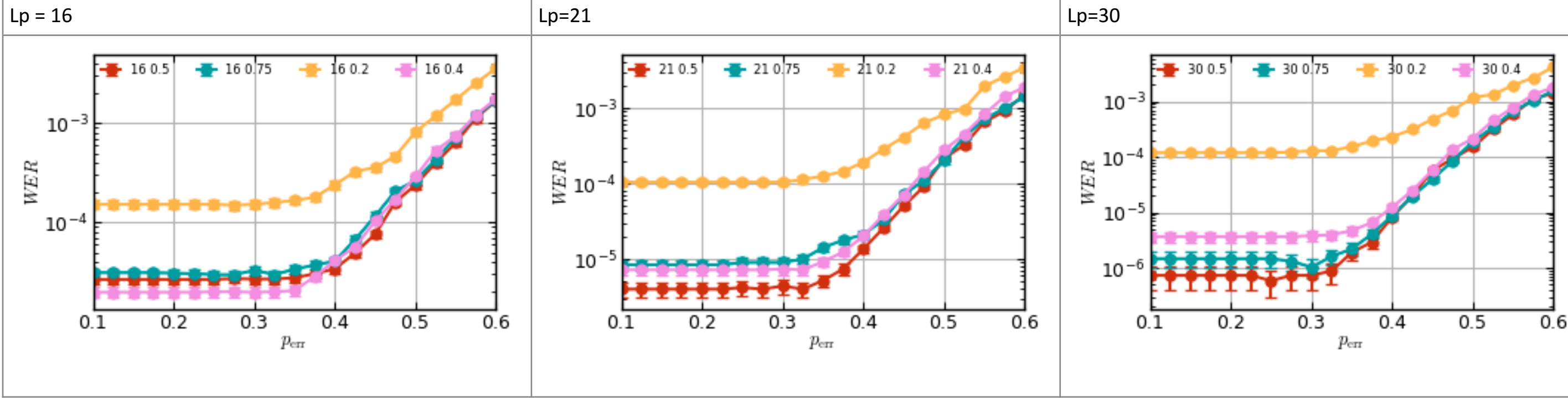
- Using OSD order 10 or 15 changes almost nothing: [lift_parameter 21 bp_iterations = 30]



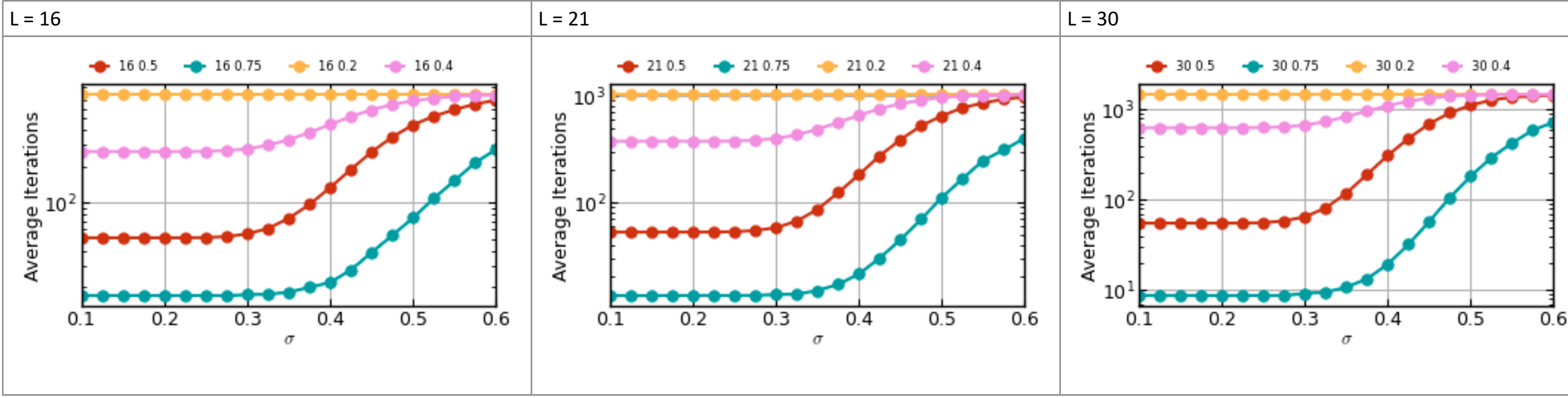
- BP Iterations has marginal affect
- From left to right, lift parameter 16, 21, and 30. Each plot shows results for 30, 50 and 0 bp_iterations



- Scaling Factor around 0.5 is optimal for the code tested



- With max_bp_iter = 0 we can find the optimal number of iterations. This will depend on multiple things. First



- After threshold, the max bp iters becomes small, and seems to become smaller for larger codes?!

