HL-LHC
WP9 Cryogenics, Process studies, Coping with Peak Lumi (ramps)

S. Claudet, 24Mar’20

(HiLumi – follow up of WP2 160th meeting on 24Sept’19)
Introduction (recall) of context

Heat loads mechanisms - Cross Section

Cryo parameters evolution when colliding

Max. already reached
Progress expected
Flexibility expected

Strategy to manage transients

- Cold compressors acceleration (not much to expect by buffering effect)
- Pre-load and active controls (in high TID area, test & developments ongoing)
- Ramp on luminosity (1e34 within ~sec, 5-7.5e34 within ~10min)
- A mix of all that to start with, and tuning-optimisation will tell what is best, but “knobs” will be there for that
Luminosity scenarii considered by WP9-Cryo

Considered for Cold Compressors control and mass-flow adjustment capabilities

Rmk: Control/adjustment for beam dump feasible, with positive effect (reduction) of magnet temperature (while increase not acceptable at ramp-up)