BLM Thresholds update after new loss maps

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Ad-hoc BLM Thresholds Meeting
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First BLM thresholds changes on Monday

- Main BLM master thresholds changes on Ion families applied during Monday

  - TCTs as discussed

  - TCLDs as discussed

  - Q6 as discussed

  - IR7 collimation -> families protecting in CH, changes based on loss maps from 26th October

- BLMs moved to ion families Monday evening

- MF set to 0.4 TCTs and TCLDs, 0.6 IR7 collimators and Q6, 0.333 DS

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BLM Thresholds updated for IONs
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- Monitors from the proton families have been moved to new ION families by M.Peryt
- The list of monitors in the new families is the same as in the LHC-BLM-ECR-0079 with 1 additional TCSG.
- Factors described and endorsed in today's MPP meeting.
- Further changes might be needed but can only come after the final loss maps.
- Monitor Factors change:
    * MF = 0.4 for 14 TCTs in the ion family
    * MF = 0.4 for 2 TCLD in the new TCLD_W family
    * MF = 0.6 at collimators (no change wrt proton run)
    * MF = 0.6 at Q6 in IR7 (no change wrt proton run)
    * no additional changes on MF.


Belen and Sara
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New betatron loss maps at collisions

- New set of loss maps at top energy during collisions the night of Monday

  - With better power loss in AM, VR

  - IR7 families protecting CH well aligned in general

  - IR7 families protecting in AM require changes from RS06

  - TCTs and TCLDs not limiting

  - Q6 not limiting

  - DS limiting from RS07 in AM -> allowing >15kW in VR and >60kW in CH

  - New bottleneck in DS for RS07-RS11 (Q8) THRI.ARDS.P3_MQ appeared in the last loss maps which needs a factor below 2 (similar to what is already in place for THRI.ARDS.P1_MQ_ION_COLL)
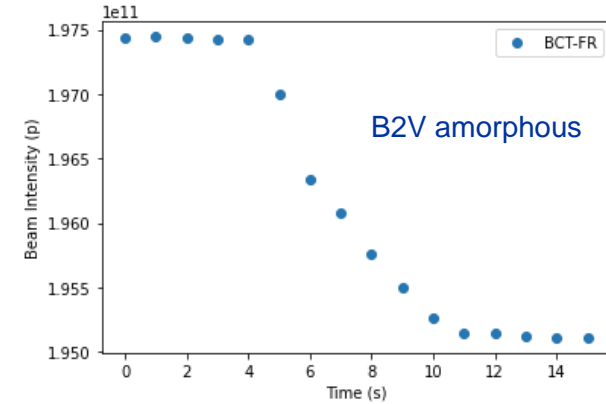
B2V amorphous

2024 families for collimation, Q6 and DS – RS09

BLM Family Name	Power Loss Limit Channeling B1 / B2 [kW]	Power Loss Limit Amorphous B1 / B2 [kW]	Power Loss Limit Volume Reflexion B1 / B2 [kW]
THRI_COLL_7_TCLA_LO_ION	113 / 130	20 / 25	30 / 40
THRI_COLL_7_TCSPM_LO_ION_H_CH	70 / 70	330 / 520	220 / 420
THRI_COLL_7_TCSPM_LO_ION_V_CH	60 / 60	110 / 200	70 / 80
THRI_COLL_7_TCSG_LO_ION_H_CH	55 / 70	260 / 300	150 / 220
THRI_COLL_7_TCSG_ME_ION_V_CH	60 / 70	300 / 370	340 / 540
THRI_COLL_7_TCSG_ME_ION_V_AM	220 / 430	40 / 60	50 / 60
THRI_COLL_7_TCSPM_LO_ION_H_AM	84 / 110	20 / 21	13 / 15
THRI.IP7.P1_MQTL_FT_ION_COLL	240 / 460	40 / 90	60 / 130
THRI.IP7.P2_MQTL_FT_ION_COLL	300 / 400	55 / 90	80 / 110
THRI.IP7.P2_MB_ION_COLL	60 / 120	10 / 20	20 / 30
THRI.IP7.P3_MB_ION_COLL	140 / 100	20 / 20	30 / 40
THRI.ARDS_MBMB_ION_COLL	170 / 100	20 / 20	40 / 40
THRI.ARDS.P1_MQ_ION_COLL	140 / 70	14 / 10	25 / 15

Reduction of 0.4 envisage in the next days

Q6 set to MQM quench limits

New bottleneck in DS for RS07-RS11 (Q8) THRI.ARDS.P3_MQ appeared in the last loss maps which needs a factor below 2
(similar to what is already in place for THRI.ARDS.P1_MQ_ION_COLL)

Changes proposed to 2024 Ion families

BLM Family Name	RS06	RS07	RS08	RS09	RS10	RS11	RS12
THRI_COLL_7_TCSG_ME_ION_V_AM	0.3	0.6	0.6	0.4	0.4	0.4	0.4
THRI_COLL_7_TCSPM_LO_ION_H_AM	1.1	1.7	1.7	1.1	1.1	1.1	1.1
THRI.IP7.P2_MB_ION_COLL	-	1.5	1.2	1.3	1.4	1.5	1.5
THRI.IP7.P3_MB_ION_COLL	-	1.6	1.3	-	-	-	-
THRI.ARDS_MBMB_ION_COLL	-	1.3	1.2	-	-	-	-
THRI.ARDS.P1_MQ_ION_COLL	-	1.7	1.3	1.3	1.7	1.5	1.5

New bottleneck in DS for RS07-RS11 (Q8) THRI.ARDS.P3_MQ appeared in the last loss maps which needs a factor below 2
(similar to what is already in place for THRI.ARDS.P1_MQ_ION_COLL) -> Create new dedicated family

Check loss maps at injection and possible corrections