



SAPIENZA  
UNIVERSITÀ DI ROMA



CENTRO RICERCHE  
ENRICO FERMI

# DATA TAKING GSI 2021

From Darmstadt with love

11-18. 07. 2021



MICHELA

1

# Summary of the data-taking

- 200 MeV/u:
  - no target
  - C target 5mm with (without) vertex
    - 0°, 2°, 4° degree Calo
  - CH target 10 mm (5mm) with (without) vertex
    - 0° degree Calo
- 400 MeV/u
  - no target
  - C target 5mm
  - CH target 10mm

**I will report some details and make some considerations.. in order to learn from mistakes and exploits the experience we gain.**

## CALORIMETER STANDALONE

- 200 MeV/u
- 400 MeV/u

## ToF CALIBRATION

- 400 MeV/u

I will show pictures.. the nice one are from Nazar : )



# Summary of the data-taking

free cave

access with dosimeter

beam on

|       | 11          | 12   | 13   | 14  | 15   | 16  | 17  | 18     |
|-------|-------------|--|--|---|--|---|---|--------|
|       | Sunday      | Monday   | Tuesday  | Wednesday   | Thursday   | Friday  | Saturday  | Sunday |
|       | Dim-        | Lun-   | Mar-   | Mer-  | Jeu-   | Ven-  | Sam-  | Dim    |
| 0-6   |             |  | Sleep  | Sleep   | Sleep  | (6) TARGET 2 - Minimum Bias   | (12) 200 MeV/u - Target 1, with vertex..                            |        |
| 6-8   | Travel      |  | Sleep  | Sleep   | 6h30 Beam on (200 and 400MeV/u) and adjustment   |   | (13) move the calorimeter at 4 degrees                              | Travel |
| 08:30 | Travel      | Morning Meeting@Cafeteria                                  | Morning Meeting@Cafeteria                                      | Morning Meeting@Cafeteria                                       | 9h30 Low Intensity STS+MSD for reduction both energies (goal 2-3 kHz)                                |   |   |        |
| 8-10  | Travel      | Unload Van/Materials                                       | Mechanics Fixing and MSD Cabling, CALO with Wavedaqstand alone | DAQ system Vertex with new system full integration              |  |   |   |        |
| 10-12 | Travel      | All material in cave                                       | DAQ and all detector ON - stand alone chekcs                   | 11h experiment safety check Trigger system                      | (1) [standalone] CALO- Calib both energies<br>(2) +ToF +SC => Delta Cables<br>(3) +DCh +Vertex + MSD | Setting a 400 MeV/u   | (14) move the calorimeter at 2 degrees                              | Travel |
| 12-14 | Travel      | Lunch - 12:45 Accelerator Meeting                          | Lunch - 12:45 Accelerator Meeting                              | Lunch - 12:45 Accelerator Meeting                               | Lunch - 12:45 Accelerator Meeting  | Lunch - 12:45 Accelerator Meeting<br>(7) calib of the ToF for 400 MeV/u<br>(8) 400 MeV TARGET2 - Minimum Bias | Lunch(?) and dis-mount  | Travel |
| 14-16 | Travel      | Kallax Mounting in cave, software mounting in control room | Cosmics for TW - Bkg run for everybody                         | General DAQ Test, detector by detector                          | No Target Runs (4) Alignement and corrections  | (9) Test Of Fragmentation Trigger   | Dis-mount   | Travel |
| 16-18 | Travel      | Uli safety Instructions => DAQ system mounting             | DAQ test with detectors - TOF thr scan                         | Pedestal Runs   | (5) TARGET 1 - Minimum Bias  | (10) TARGET 2 - Frag.Trig   | Remove Van from GSI and Relax                                       | Travel |
| 18-20 | Travel      | TW Mechanics MSD and Vertex                                | Dosimeter test Detectors on-off on the beam line               | Cosmics   |  | (11) TARGET 1 - Minimum Bias  | 18.30h RDV with Uli to close the gate - Leave with the Rome Van GSI | Travel |
| 20-22 | Travel      | Dinner   | Dinner   | Dinner  |  | (6) TARGET 2 - Minimum Bias   |   | Dinner |
| 22-24 | partita : ) | Relax  | Relax  | "Final" Geometry measurements => Remove detector from beam line | (12) TARGET 1 - Fragmentation Trigger  |   | Sleep   | !      |

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# Summary of the

|       | 11         | 12                                  |  |
|-------|------------|-------------------------------------|--|
|       | Sunday     | Monday                              |  |
|       | Dim-       | Lun-                                |  |
| 0-6   |            |                                     |  |
| 6-8   | Travel     |                                     |  |
| 08:30 | Travel     | Morning Meeting@Cafeteria           | Meet   |
| 8-10  | Travel     | Unload Van/Materials                | Mecha MSD Ca Wave                                |
| 10-12 | Travel     | All material in cave                | DAQ and stand                                    |
| 12-14 | Travel     | Lunch - 12:45 Accelerator Meeting   | Lunch -  |
| 14-16 | Travel     | Kallax Mounting software mo control |  |
| 16-18 | Travel     | Uli safety In => DAQ syste          |  |
| 18-20 | Travel     | TW Mechanics MSD and Vertex         | Dosimeter test Detectors on-off on the beam line |
| 20-22 | Travel     | Dinner                              | Dinner   |
| 22-24 | partita :) | Relax                               | Relax  |



|        |        |
|--------|--------|
| Dinner | Dinner |
| Relax  | Relax  |

LS

Leonello Servoli

non ho resistito..... :) ma la schelule mi ha riportato qualcuno alla mente... In bocca al lupo per stanotte

14 July 2021 at 22:07



(6) TARGET 2 - Minimum Bias

(12) TARGET 1 - Fragmentation Trigger

Sleep



# Summary of the data-taking

|       | 11          | 12                                  | 13      | 14        |  |
|-------|-------------|-------------------------------------|---------|-----------|--|
|       | Sunday      | Monday                              | Tuesday | Wednesday |  |
|       | Dim-        | Lun-                                | Mar-    | Mer-      |  |
| 0-6   |             |                                     |         |           |  |
| 6-8   | Travel      |                                     |         |           |  |
| 08:30 | Travel      | Morning Meeting@                    |         |           |  |
| 8-10  | Travel      | Unload Var                          |         |           |  |
| 10-12 | Travel      | All materi                          |         |           |  |
| 12-14 | Travel      | Lunch - 12:44<br>Mee                |         |           |  |
| 14-16 | Travel      | Kallax Moun<br>software m<br>contro |         |           |  |
| 16-18 | Travel      | Uli safety In<br>=> DAQ syste       |         |           |  |
| 18-20 | Travel      | TW Mechanic<br>Ver                  |         |           |  |
| 20-22 | Travel      | Din                                 |         |           |  |
| 22-24 | partita : ) | Rel                                 |         |           |  |



|                          |        |
|--------------------------|--------|
|                          | Travel |
| h GSI                    | Travel |
| Uli to<br>Leave<br>h GSI | Travel |
|                          | Travel |
|                          | !      |

# Summary of the data-taking

free cave

access with dosimeter

beam on

|       | 11         | 12                      | 13      | 14        | 15       | 16   | 17  | 18  |
|-------|------------|-------------------------|---------|-----------|----------|--|---|---|
|       | Sunday     | Monday                  | Tuesday | Wednesday | Thursday | Friday   | Saturday  | Sunday  |
|       | Dim-       | Lun-                    | Mar-    | Mer-      | Jeu-     | Ven-   | Sam-  | Dim   |
| 0-6   |            | Mounting<br>and Testing |         |           |          | Sleep  | (6) TARGET 2 - Minimum Bias   | (12) 200 MeV/u - Target 1, with vertex..                            |
| 6-8   | Travel     |                         |         |           |          | 6h30 Beam on (200 and 400MeV/u) and adjustment   | (6) TARGET 2 - Minimum Bias   | (13) move the calorimeter at 4 degrees                              |
| 08:30 | Travel     |                         |         |           |          | 9h30 Low Intensity STS+MSD for reduction both energies (goal 2-3 kHz)                                |   | Travel  |
| 8-10  | Travel     |                         |         |           |          |  |   | Travel  |
| 10-12 | Travel     |                         |         |           |          | (1) [standalone] CALO- Calib both energies<br>(2) +ToF +SC => Delta Cables<br>(3) +DCh +Vertex + MSD | Setting a 400 MeV/u   | (14) move the calorimeter at 2 degrees                              |
| 12-14 | Travel     |                         |         |           |          | Lunch - 12:45 Accelerator Meeting  | Lunch - 12:45 Accelerator Meeting<br>(7) calib of the ToF for 400 MeV/u<br>(8) 400 MeV TARGET2 - Minimum Bias | Lunch(?) and dis-mount  |
| 14-16 | Travel     |                         |         |           |          | No Target Runs (4) Alignement and corrections  | (9) Test Of Fragmentation Trigger   | Dis-mount   |
| 16-18 | Travel     |                         |         |           |          | (5) TARGET 1 - Minimum Bias  | (10) TARGET 2 - Frag.Trig   | Remove Van from GSI and Relax                                       |
| 18-20 | Travel     |                         |         |           |          |  | (11) TARGET 1 - Minimum Bias  | 18.30h RDV with Uli to close the gate - Leave with the Rome Van GSI |
| 20-22 | Travel     |                         |         |           |          | (6) TARGET 2 - Minimum Bias  |   | Dinner  |
| 22-24 | partita :) |                         |         |           |          |  | (12) TARGET 1 - Fragmentation Trigger   | Sleep   |



# Summary of th

|       | 11         | 12   |                             |   |                                       |  | on     |
|-------|------------|--|-----------------------------|---|---------------------------------------|--|--------|
|       | Sunday     | Monday   |                             |   |                                       |  | 18     |
|       | Dim-       | Lun-   |                             |   |                                       |  | Sunday |
|       |            |  |                             |   |                                       |  | Dim    |
| 0-6   |            |  |                             |   |                                       |  |        |
| 6-8   | Travel     |  |                             |   |                                       |  | Travel |
| 08:30 | Travel     | Morning Meeting@Cafeteria                                  |                             |   |                                       |  | Travel |
| 8-10  | Travel     | Unload Van/Materials                                       |                             |   |                                       |  | Travel |
| 10-12 | Travel     | All material in cave                                       |                             |   |                                       |  | Travel |
| 12-14 | Travel     | Lunch - 12:45 Accelerator Meeting                          |                             |   |                                       |  | Travel |
| 14-16 | Travel     | Kallax Mounting in cave, software mounting in control room |                             |   |                                       |  | Travel |
| 16-18 | Travel     | Uli safety Instructions => DAQ system mounting             |                             |   |                                       |  | Travel |
| 18-20 | Travel     | TW Mechanics MSD and Vertex                                | Dos on-off on the beam line | Cosmics   | (11) TARGET 1 - Minimum Bias          | Close the gate - Leave with the Rome Van GSI | Travel |
| 20-22 | Travel     | Dinner   | Dinner                      | Dinner  | (6) TARGET 2 - Minimum Bias           | Dinner                                       | Travel |
| 22-24 | partita :) | Relax  | Relax                       | "Final" Geometry measurements => Remove detector from beam line | (12) TARGET 1 - Fragmentation Trigger | Sleep  | !      |



First thing to do.. take a picture : )

# Summary of the data-taking

free cave

access with dosimeter

beam on

|       | 11         | 12   |
|-------|------------|--|
|       | Sunday     | Monday   |
|       | Dim-       | Lun-   |
| 0-6   |            |  |
| 6-8   | Travel     |  |
| 08:30 | Travel     | Morning Meeting@Cafeteria                                  |
| 8-10  | Travel     | Unload Van/Materials                                       |
| 10-12 | Travel     | All material in cave                                       |
| 12-14 | Travel     | Lunch - 12:45 Accelerator Meeting                          |
| 14-16 | Travel     | Kallax Mounting in cave, software mounting in control room |
| 16-18 | Travel     | Uli safety Instructions => DAQ system mounting             |
| 18-20 | Travel     | TW Mechanics MSD and Vertex                                |
| 20-22 | Travel     | Dinner   |
| 22-24 | partita :) | Relax  |

| 13                                     | 14                                     | 15   |
|--|--|--|
| Tuesday                                | Wednesday                              | Thursday   |
| Sleep                                  | Sleep                                  | Sleep  |
| Sleep                                  | Sleep                                  | Sleep  |
| Morning Meeting@Cafeteria              | Morning Meeting@Cafeteria              | 9h30 Low Intensity STS+MSD for reduction both energies |
| Mechanics Fixing and MSD Cabling       | DAQ system Vertex full integration     | for reduction both energies                            |
| Wavedagstand alone                     | 11h experiment trigger system          | (3) +DCh +Vertex + MSD                                 |
| DAQ and all detector ON-stand alone    |  |  |
| Lunch - 12:45 Accelerator Meeting      | Lunch - 12:45 Accelerator Meeting      | Lunch - 12:45 Accelerator Meeting                      |
| Cosmics for 2h - Bkg run for everybody | General DAQ Test, detector by detector | No Target Runs (4) Alignment and corrections           |
| DAQ                                    |  |  |
| Dos on-                                |  |  |

Actually we have been lucky..

- only few quantity of water get in the sources hangar..
- no covid constraints on the number of people in cave have been applied because most of us was vaccinated





# Summary of the data-taking

free cave

access with dosimeter

beam on

|       | 11         | 12   | 13   | 14  | 15  | 16                                    | 17  | 18     |
|-------|------------|--|--|---|---|---------------------------------------|---|--------|
|       | Sunday     | Monday   | Tuesday  | Wednesday   | Thursday  | Friday                                | Saturday  | Sunday |
|       | Dim-       | Lun-   | Mar-   | Mer-  | Jeu-  | Ven-                                  | Sam-  | Dim    |
| 0-6   |            |  | Sleep  | Sleep   | Sleep   | (6) TARGET 2 - Minimum Bias           | (12) 200 MeV/u - Target 1, with vertex..                            |        |
| 6-8   | Travel     |  | Sleep  | Sleep   | 6h30 Beam on (200 and 400MeV/u) and adjustment                        |                                       | (13) move the calorimeter at 4 degrees                              | Travel |
| 08:30 | Travel     | Morning Meeting@Cafeteria                                  | Morning Meeting@Cafeteria                                      | Morning Meeting@Cafeteria                                       | 9h30 Low Intensity STS+MSD for reduction both energies (goal 2-3 kHz) |                                       |   | Travel |
| 8-10  | Travel     | Unload Van/Materials                                       | Mechanics Fixing and MSD Cabling, CALO with Wavedaqstand alone | DAQ system Ver with new system full integration                 |   |                                       |   | Travel |
| 10-12 | Travel     | All material in cave                                       | DAQ and all detector ON - stand alone chekcs                   | 11h experiment safety check Trigger system                      | (1) [standalone] CAJO- Calib both energies                            |                                       | (14) move the calorimeter at 2 degrees                              | Travel |
| 12-14 | Travel     | Lunch - 12:45 Accelerator Meeting                          | Lunch - 12:45 Accelerator Meeting                              | Lunch - 12:45 Accelerator Meeting                               | (2) +ToF +SC => Delta Cables  | Setting a 400 MeV/u                   | (15) 400 MeV/u - Target 2 and dis-mount                             | Travel |
| 14-16 | Travel     | Kallax Mounting in cave, software mounting in control room | Cosmics for TW - Bkg run for everyboday                        | General DAQ Test, detector by detector                          | (3) D.D. - 12:45 Accelerator Meeting                                  | (8) 400 MeV TARGET2 - Minimum Bias    |   | Travel |
| 16-18 | Travel     | Uli safety Instructions => DAQ system mounting             | DAQ test with detectors - TOF thr scan                         | Pedestal Runs   | No Target Runs (4) Alignment and corrections                          | (9) Test of the Trigger               | Dis-mount   | Travel |
| 18-20 | Travel     | TW Mechanics MSD and Vertex                                | Dosimeter test Detectors on-off on the beam line               | Cosmics   |   | (10) TARGET 2 - Fragmenting           | 18.30h RDV with Uli to close the gate - Leave with the Rome Van GSI | Travel |
| 20-22 | Travel     | Dinner   | Dinner   | Dinner  |   | (11) TARGET 1 - Minimum Bias          | Dinner  | Travel |
| 22-24 | partita :) | Relax  | Relax  | "Final" Geometry measurements => Remove detector from beam line | (6)   | (12) TARGET 1 - Fragmentation Trigger | Sleep   | !      |


Mounting staff takes time and energies..

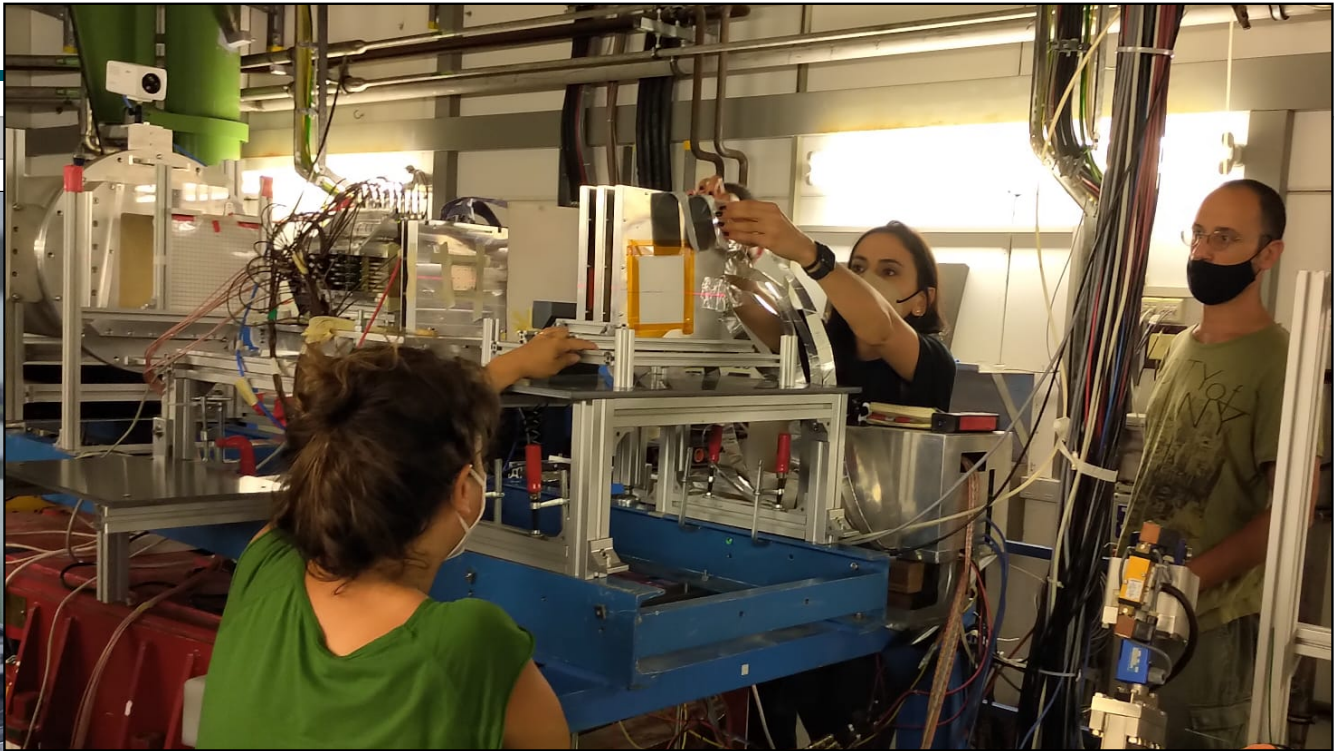
Actually we have been lucky..  
● we had huge mechanical supports from Cris of GSI and “i ragazzoni del ToF”..

MSD table (26 cm under the beamline!)

Tables for support our detectors in the “out of beam” configuration

# Summary of the data-

|       | 11   | 12     | 13      |
|-------|--|--------|---------|
|       | Sunday   | Monday | Tuesday |
| 0-6   |  |        |         |
| 6-8   |  |        |         |
| 08:30 |  |        |         |
| 8-10  |  |        |         |
| 10-12 |  |        |         |
| 12-14 |  |        |         |
| 14-16 |  |        |         |
| 16-18 |  |        |         |
| 18-20 |  |        |         |
| 20-22 |  |        |         |
| 22-24 |  |        |         |



|  |  |                                       |   |        |
|--|--|---------------------------------------|---|--------|
| Tables for support<br>our detectors in<br>the “out of beam”<br>configuration |  | (8) 400 MeV TARGET2 - Minimum Bias    | Dis-mount   | Travel |
|  |  | (9) Target 1 - Minimum Bias           | Travel  | Travel |
| MSD table (26 cm<br>under the beamline!)                                     |  | (10) TARGET 2 - Fragmenting           | 18.30h RDV with Uli to<br>close the gate - Leave<br>with the Rome Van GSI | Travel |
|  |  | (11) TARGET 1 - Minimum Bias          | Dinner  | Travel |
| from beam line   |  | (12) TARGET 1 - Fragmentation Trigger | Sleep   | !      |



# Summary of the data-taking

free cave

access with dosimeter

beam on

|       | 11         | 12   | 13   | 14  | 15  | 16                          | 17                                       | 18     |
|-------|------------|--|--|---|---|-----------------------------|--|--------|
|       | Sunday     | Monday   | Tuesday  | Wednesday   | Thursday  | Friday                      | Saturday                                 | Sunday |
|       | Dim-       | Lun-   | Mar-   | Mer-  | Jeu-  | Ven-                        | Sam-                                     | Dim    |
| 0-6   |            |  | Sleep  | Sleep   | Sleep   | (6) TARGET 2 - Minimum Bias | (12) 200 MeV/u - Target 1, with vertex.. |        |
| 6-8   | Travel     |  | Sleep  | Sleep   | 6:30-8:00 am on 400 and 4000 MeV for reduction both energies  |                             | move the calorimeter at 4 degrees        | Travel |
| 08:30 | Travel     | Morning Meeting@Cafeteria                                  | Morning Meeting@Cafeteria                                      | Morning Meeting@Cafeteria                                       | 9h30-11h00 am on 400 and 4000 MeV for reduction both energies |                             |  | Travel |
| 8-10  | Travel     | Unload Van/Materials                                       | Mechanics Fixing and MSD Cabling, CALO with Wavedaqstand alone | DAQ system Ver with new system full integration                 | (1) [s both energies  |                             |  | Travel |
| 10-12 | Travel     | All material in cave                                       | DAQ and all detector ON - stand alone cheks                    | 11h experiment safety check Trigger system                      | (2) +ToF +SC => Delta Cables                                  | Setting a 400 MeV/u         | (14) move the calorimeter at 2 degrees   | Travel |
| 12-14 | Travel     | Lunch - 12:45 Accelerator Meeting                          | Lunch - 12:45 Accelerator Meeting                              | Lunch - 12:45 Accelerator Meeting                               | Lunch - 12:45 Accelerator Meeting                             |                             | (?) and dis-mount                        | Travel |
| 14-16 | Travel     | Kallax Mounting in cave, software mounting in control room | Cosmics for TW - Bkg run for everybody                         | General DAQ Test, detector by detector                          | No Target Runs (4) Alignment and corrections                  | (9) Test                    | Dis-moun                                 | Travel |
| 16-18 | Travel     | Uli safety Instructions => DAQ system mounting             | DAQ test with detectors - TOF thr scan                         | Pedestal Runs   | (10) TARGET 2 - Minimum Bias                                  |                             | Dis-moun                                 | Travel |
| 18-20 | Travel     | TW Mechanics MSD and Vertex                                | Dosimeter test Detectors on-off on the beam line               | Cosmics   | (11) TARGET 1 - Minimum Bias                                  |                             | Dis-moun                                 | Travel |
| 20-22 | Travel     | Dinner   | Dinner   | Dinner  | (12) TARGET 2 - Minimum Bias                                  |                             | Dinner                                   | Travel |
| 22-24 | partita :) | Relax  | Relax  | "Final" Geometry measurements => Remove detector from beam line |   |                             |  |        |

Mounting staff takes time and energies..

Actually we have been lucky..

- no covid constraints on the number of people in cave have been applied because most of us was vaccinated
- we had huge mechanical supports from Cris of GSI and *"i ragazzoni del ToF"*

MSD table (26 cm under the beamline!)

Tables for support our detectors in the "out of beam" configuration

Margarita support for DeltaCable runs

Mounting stuff in general



# Summary of the data-taking

free cave

access with dosimeter

beam on

|       | 11         | 12   | 13   | 14  | 15       | 16     | 17  | 18     |
|-------|------------|--|--|---|----------|--------|---|--------|
|       | Sunday     | Monday   | Tuesday  | Wednesday   | Thursday | Friday | Saturday  | Sunday |
|       | Dim-       | Lun-   | Mar-   | Mer-  | Jeu-     | Ven-   | Sam-  | Dim    |
| 0-6   |            |  | Sleep  | Sleep   | Sleep    |        |   |        |
| 6-8   | Travel     |  | Sleep  | Sleep   |          |        |   | Travel |
| 08:30 | Travel     | Morning Meeting@Cafeteria                                  | Morning Meeting@Cafeteria                                      | Morning Meeting@Cafeteria                                       |          |        |   | Travel |
| 8-10  | Travel     | Unload Van/Materials                                       | Mechanics Fixing and MSD Cabling, CALO with Wavedaqstand alone | DAQ system Vertex with new system full integration              |          |        |   | Travel |
| 10-12 | Travel     | All material in cave                                       | DAQ and all detector ON - stand alone chekcs                   | 11h experiment safety check Trigger system                      |          |        |   | Travel |
| 12-14 | Travel     | Lunch - 12:45 Accelerator Meeting                          | Lunch - 12:45 Accelerator Meeting                              | Lunch - 12:45 Accelerator Meeting                               |          |        | Lunch(?) and dis-mount  | Travel |
| 14-16 | Travel     | Kallax Mounting in cave, software mounting in control room | Cosmics for TW - Bkg run for everybody                         | General DAQ Test, detector by detector                          |          |        | Dis-mount   | Travel |
| 16-18 | Travel     | Uli safety Instructions => DAQ system mounting             | DAQ test with detectors - TOF thr scan                         | Pedestal Runs   |          |        | Remove Van from GSI and Relax                                       | Travel |
| 18-20 | Travel     | TW Mechanics MSD and Vertex                                | Dosimeter test Detectors on-off on the beam line               | Cosmics   |          |        | 18.30h RDV with Uli to close the gate - Leave with the Rome Van GSI | Travel |
| 20-22 | Travel     | Dinner   | Dinner   | Dinner  |          |        | Dinner  | Travel |
| 22-24 | partita :) | Relax  | Relax  | "Final" Geometry measurements => Remove detector from beam line |          |        | Sleep   | !      |

# Summary of the data-taking

free cave

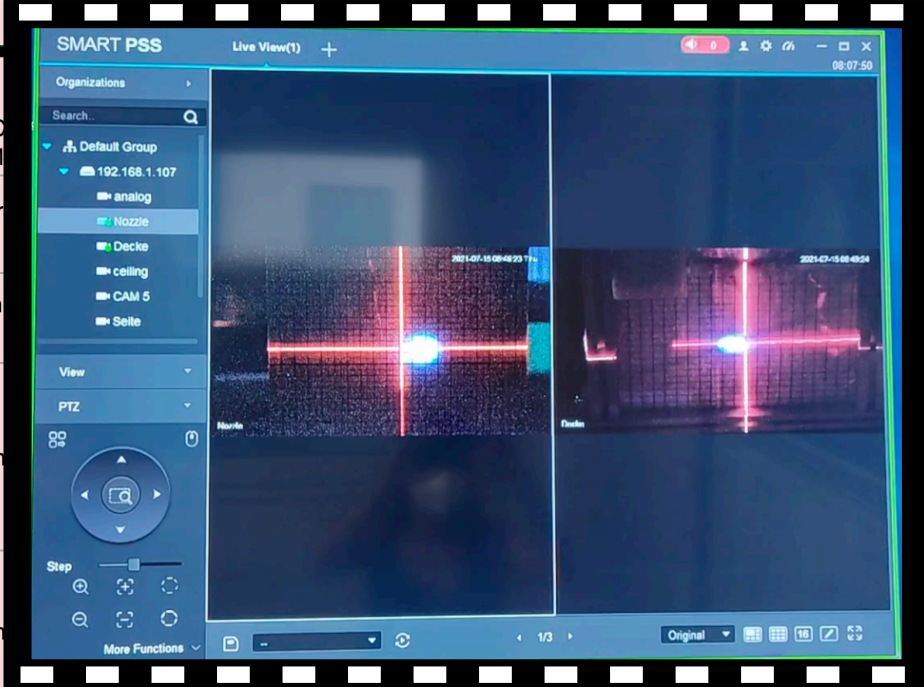
access with dosimeter

beam on

|       | 11     | 12   | 13                                     | 14  | 15  | 16                          | 17                                       | 18     |
|-------|--------|--|--|---|---|-----------------------------|--|--------|
|       | Sunday | Monday   | Tuesday                                | Wednesday   | Thursday  | Friday                      | Saturday                                 | Sunday |
|       | Dim-   | Lun-   | Mar-                                   | Mer-  | Jeu-  | Ven-                        | Sam-                                     | Dim    |
| 0-6   |        | Beam Settings                                  |  |   | Sleep   | (6) TARGET 2 - Minimum Bias | (12) 200 MeV/u - Target 1, with vertex.. |        |
| 6-8   | Travel |  |  | Sleep   | 6h30 Beam on (200 and 400MeV/u) and adjustment  |                             | (13) move the calorimeter at 4 degrees   | Travel |
| 08:30 | Travel | Morning Meeting @ GSI                          | Morning Meeting @ GSI                  | Morning Meeting @ GSI   | 9h30 Low Intensity STS+MSD for reduction both energies (goal 2-3 kHz)                   |                             |  | Travel |
| 8-10  | Travel |  |  | DAQ system Vertex with new system full integration              |   |                             |  | Travel |
| 10-12 | Travel |  |  | 11h experiment safety check Trigger system                      | (1) [standalone] CALO- both energies<br>(2) +ToF +SC => Delta C<br>(3) +DCh +Vertex + M |                             |  |        |
| 12-14 | Travel | Lunch  | Lunch                                  | Lunch - 12:45 Accelerator Meeting                               | Lunch - 12:45 Accelerator Meeting   |                             |  |        |
| 14-16 | Travel |  |  | General DAQ Test, detector by detector                          | No Target Runs (4) Align and corrections  |                             |  |        |
| 16-18 | Travel | Uli safety Instructions => DAQ system mounting | DAQ test with detectors - TOF thr scan | Pedestal Runs   | (5) TARGET 1 - Minimum  |                             |  |        |
| 18-20 | Travel |  |  |   |   |                             |  |        |
| 20-22 | Travel |  |  |   |   |                             |  |        |
| 22-24 | Travel |  |  | "Final" Geometry measurements => Remove detector from beam line | (6) TARGET 2 - Minimum  |                             |  |        |

Every minutes of beam at GSI can be the last one.. unfortunately this dramatically drives the priorities and the data taking strategy

Finally adjust both beam energies was a good idea (from Cris and Uli).. but it was a bet!



# Summary of the data-taking

free cave

access with dosimeter

beam on

|       | 11         | 12                                 | 13   | 14  | 15   | 16   | 17  | 18     |
|-------|------------|------------------------------------|--|---|--|--|---|--------|
|       | Sunday     | Monday                             | Tuesday  | Wednesday   | Thursday   | Friday   | Saturday  | Sunday |
|       | Dim-       | Lun-                               | Mar-   | Mer-  | Jeu-   | Ven-   | Sab-  | Dim    |
| 0-6   |            | Beam Settings                      |  |   |  | (6) TARGET 2   |   |        |
| 6-8   | Travel     |                                    | Sleep  | Sleep   | 6h30 Beam on (200 and 400MeV/u) and adjustment   |  |   | Travel |
| 08:30 | Travel     | Morning Meeting@Cafeteria          | Morning Meeting@Cafeteria                                      | Morning Meeting@Cafeteria                                       | 9h30 Low Intensity STS+MSD for reduction both energies (goal 2-3 kHz)                                |  |   | Travel |
| 8-10  | Travel     | Unload Van/Materials               | Mechanics Fixing and MSD Cabling, CALO with Wavedaqstand alone | DAQ system Vertex with new system full integration              |  |  |   | Travel |
| 10-12 | Travel     | All material in cave               | DAQ and all detector ON - stand alone chekcs                   | 11h experiment safety check Trigger system                      | (1) [standalone] CALO- Calib both energies<br>(2) +ToF +SC => Delta Cables<br>(3) +DCh +Vertex + MSD | Setting a 400 MeV/u  |   | Travel |
| 12-14 | Travel     |                                    |  |   | generator  | Lunch - 12:45 Accelerator (7) calib of the ToF for 400 MeV (8) 400 MeV TARGET2 - Min |   | Travel |
| 14-16 | Travel     |                                    |  |   | ignment  | (9) Test Of Fragmentation  |   | Travel |
| 16-18 | Travel     | Uli safety Instructions => DAQ sys | DAQ test with detectors -                                      | Pedestal Runs   |  | (10) TARGET 2 - Frag.  |   | Travel |
| 18-20 | Travel     | TW Mech                            |  |   | (5) TARGET 1 - Minimum Bias  | (11) TARGET 1 - Minimum Bias   | 18.30h RDV with Uli to close the gate - Leave with the Rome Van GSI | Travel |
| 20-22 | Travel     | Dinner                             | Dinner   | Dinner  |  |  | Dinner  | Travel |
| 22-24 | partita :) | Relax                              | Relax  | "Final" Geometry measurements => Remove detector from beam line | (6) TARGET 2 - Minimum Bias  | (12) TARGET 1 - Fragmentation Trigger  | Sleep   | !      |

- 2 hours to get the beam in the cave ..  
- 2 hour to adjust the low intensity

Low intensity takes time and the beam shape at 200 MeV/u was not perfect

Without STS extra detectors life at GSI would be much more complicated

About this I want to open a short parenthesis..



# Summary of the data-taking

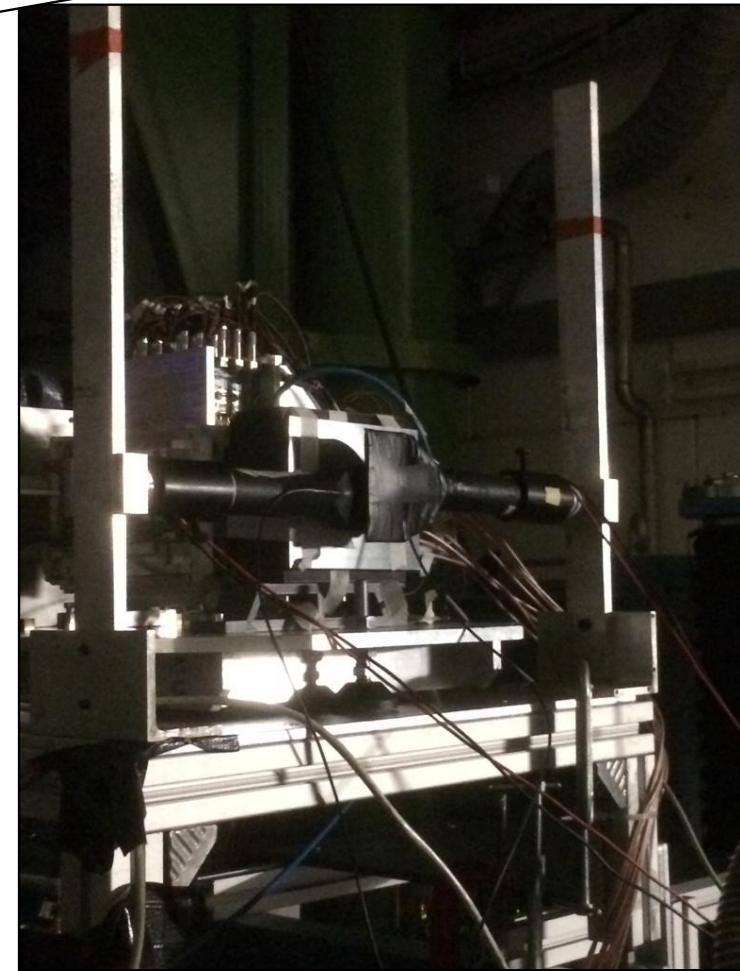
About this I want to open  
a short parenthesis..

WaveDAQ is super cool and DAQ too.. BUT..

..having system of detectors that is mainly not able to *bring out* a signal if no DAQ is running (or is in wavescope modality) is not a good idea in general, especially at GSI where the accelerator guys need a physical signal ('something.. discriminated') to adjust the intensity of the beam.

Moreover, the intensity is not flat in time, they need these signals also to adjust the spill shape and monitor the beam along hours..

Most of the problems can be overcome.. *the extra plastic scintillators were a good option for the beam tuning needs* and for the running time there were the calorimeter signal and at the end of the data-taking the DCh one..



Without STS extra detectors life at GSI  
would be much more complicated

# Summary of the data-taking

About this I want to open a short parenthesis..

WaveDAQ is super cool and DAQ too.. BUT..

..having system of detectors that is mainly not able to *bring out* a signal if no DAQ is running (or is in wavescope modality) is not a good idea in general, especially at GSI where the accelerator guys need a physical signal ('something.. discriminated') to adjust the intensity of the beam.

Moreover, the intensity is not flat in time, they need these signals also to adjust the spill shape and monitor the beam along hours..

Most of the problems can be overcome.. *the extra plastic scintillator for the run and of the d*

*Of course this is a problem that may not occur in CNAO.. however I really want to stress that a 'standalone' signal that people can put in an oscilloscope makes things much easier.*



Of course I have suggestions : P

=> the Margarita majority is my favorite one

# Summary of the data-taking

free cave

|       | 11                      | 12   | 13                                     | 14   | 15  |        |
|-------|-------------------------|--|--|--|---|--------|
|       | Sunday                  | Monday   | Tuesday                                | Wednesday  | Thursday  |        |
|       | Dim-                    | Lun-   | Mar-                                   | Mer-   | Jeu-  |        |
| 0-6   | Calorimeter Calibration |  |  |  | Sleep   | (6) TA |
| 6-8   | Travel                  |  | Sleep                                  | Sleep  | 6h30 Beam on (200 and 400MeV/u) and adjustment                        |        |
| 08:30 | Travel                  | Morning Meeting@Cafeteria                      | Morning Meeting@Cafeteria              | Morning Meeting@Cafeteria                          | 9h30 Low Intensity STS+MSD for reduction both energies (goal 2-3 kHz) |        |
| 8-10  | Travel                  |  |  | DAQ system Vertex with new system full integration | (1) [standalone] CALO- Calib both energies                            |        |
| 10-12 | Travel                  |  |  | 11h experiment safety check Trigger system         | (2) +TOF +SC => Data Cables<br>(3) +DCh +Vertex + MSD                 |        |
| 12-14 | Travel                  |  |  | Lunch - 12:45 Accelerator Meeting                  | Lun   |        |
| 14-16 | Travel                  |  |  | General DAQ Test, detector by detector             | No Ta   | Travel |
| 16-18 | Travel                  | Uli safety Instructions => DAQ system mounting | DAQ test with detectors - TOF thr scan | Pedestal Runs                                      | (5) TA  | Travel |
| 18-20 |                         |  |  |  |   | Travel |
| 20-22 |                         |  |  |  |   | Travel |
| 22-24 | partita :)              | Relax  | Relax                                  | measurements => Remove detector from beam line     | (6) TA  | !      |

Only **one** crystal for both energies. A remote controlled motor (like the ToF) would make possible a calibration crystal by crystal

Of course the calorimeter calibration was important.. it took in total about ~30 minutes (energy change, bla bla..)



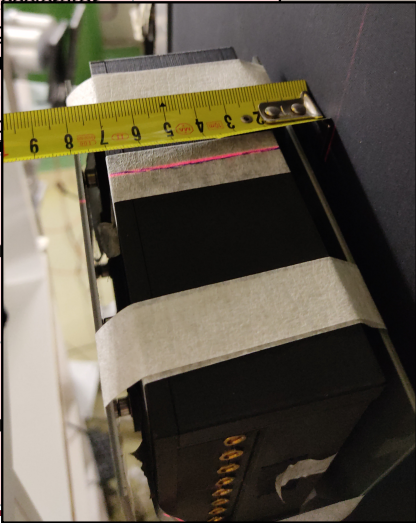


# Summary of the data-taking

free cave

|       | 11                | 12                          | 13  | 14  | 15   |             |
|-------|-------------------|-----------------------------|---|---|--|-------------|
|       | Sunday            | Monday                      | Tuesday   | Wednesday   | Thursday   |             |
|       | Dim-              | Lun-                        | Mar-  | Mer-  | Jeu-   |             |
| 0-6   | No targets runs.. |                             |   |   | Sleep  | (6) TARG    |
| 6-8   | Travel            |                             | Sleep   | Sleep   | 6h30 Beam on (200 and 400MeV/u) and adjustment   |             |
| 08:30 | Travel            | Morning Meeting@Cafeteria   | Morning Meeting@Cafeteria                                     | Morning Meeting@Cafeteria                                       | 9h30 Low Intensity STS+MSD for reduction both energies (goal 2-3 kHz)                                |             |
| 8-10  | Travel            | Unload Van/Materials        | Mechanics fixing and MSD Cabling, C/O with Wavedagstand alone | DAQ system Vertex with new system full integration              |  |             |
| 10-12 | Travel            |                             | detector ON - one chekcs                                      | 11h experiment safety check trigger system                      | (1) [standalone] CALO- Calib both energies<br>(2) +ToF +SC => Delta Cables<br>(3) +DCh +Vertex + MSD | Setti       |
| 12-14 | Travel            |                             | 45 Accelerator Meeting  | Lunch - 12:45 Accelerator Meeting                               | Lunch - 12:45 Accelerator Meeting  | Lunch - 12: |
| 14-16 | Travel            |                             | TW - Bkg run everybody  | General DAQ Test, detector by detector                          | No Target Runs (4) and correct   |             |
| 16-18 | Travel            |                             | with detectors - thr scan                                     | Pedestal Runs   | (5) TARGET 1 - Mi  |             |
| 18-20 | Travel            | TW mechanics MSD and Vertex | Dosimeter test Detectors on-off on the beam line              | Cosmics   |  |             |
| 20-22 | Travel            | Dinner                      | Dinner  | Dinner  |  |             |
| 22-24 | partita :)        | Relax                       | Relax   | "Final" Geometry measurements => Remove detector from beam line | (6) TARGET 2 - Mi  |             |

Time and space alinement are crucial. It takes time but it worth for the analysis



tion Trigger Sleep !



# Summary of the data-taking

free cave

access with do

Parasitic detectors and their users have been very discrete

In the mean while Sofia mount neutron detectors..




|       | 11         | 12     | 13      | 14   | 15   | 16     |
|-------|------------|--------|---------|--|--|--------|
|       | Sunday     | Monday | Tuesday | Wednesday                                      | Thursday                                     | Friday |
|       | Dim-       |        |         | Mer-   | Jeu-   | Ven-   |
| 0-6   |            |        |         | Sleep  | Sleep  |        |
| 6-8   | Travel     |        | Sleep   | Sleep  | 6h30 Beam on (200 and 400MeV/u) and adjustme |        |
| 08:30 | T          |        |         |  |  | Travel |
| 8-10  | T          |        |         |  |  | Travel |
| 10-12 | T          |        |         |  |  | Travel |
| 12-14 | T          |        |         |  |  | Travel |
| 14-16 | T          |        |         |  |  | Travel |
| 16-18 | T          |        |         |  |  | Travel |
| 18-20 | T          |        |         |  |  | Travel |
| 20-22 | T          |        |         |  |  | Travel |
| 22-24 | partita :) | Relax  | Relax   | Measurements => Remove detector from beam line |  | !      |

# Summary of the data-taking

free cave

access with dosimeter

beam on

|       | 11             | 12      | 13      | 14        | 15   | 16   | 17  | 18     |
|-------|----------------|---------|---------|-----------|--|--|---|--------|
|       | Sunday         | Monday  | Tuesday | Wednesday | Thursday   | Friday   | Saturday  | Sunday |
|       | Dim-           | Lun-    | Mar-    | Mer-      | Jeu-   | Ven-   | Sam-  | Dim    |
| 0-6   | 200 MeV/u Beam |         |         |           | Sleep  | (6) TARGET 2 - Minimum Bias  | (12) 200 MeV/u - Target 1, with vertex..                            |        |
| 6-8   | Travel         |         | Sleep   | Sleep     | 6h00 Beam on (200 and 400MeV/u) and adjustment   |  | (13) move the calorimeter at 4 degrees                              | Travel |
| 08:30 |                | Morning | Morning | Morning   |  |  |   |        |
| 8-10  |                |         |         |           | 9h30 Low Intensity STS+MSD for reduction both energies (goal 2-3 kHz)                                |  |   |        |
| 10-12 |                |         |         |           | (1) [standalone] CALO- Calib both energies<br>(2) +ToF +SC => Delta Cables<br>(3) +DCh +Vertex + MSD |  |   |        |
| 12-14 |                |         |         |           | Lunch - 12:45 Accelerator Meeting  |  |   |        |
| 14-16 |                |         |         |           | No Target Runs (4) Alignment and corrections   |  |   |        |
| 16-18 |                |         |         |           | (5) TARGET 1 - Minimum Bias  | (11) TARGET 1 - Minimum Bias   | 18.30h RDV with Uli to close the gate - Leave with the Rome Van GSI | Travel |
| 18-20 |                |         |         |           |  |  | Dinner  | Travel |
| 20-22 |                |         |         |           |  |  |   |        |
| 22-24 |                |         |         |           | (6) TARGET 2 - Minimum Bias  | (12) TARGET 1 - Fragmentation Trigger  | Sleep   | !      |

**Without Vertex:** while without vertex is not possible to reconstruct the primary interaction position in the target (beside MSD info that we were not sure to have) we decide to go for a 5 mm target in order to reduce the primary beam uncertainty in energy and position.

The 5 mm CH choice asked for the double of the statistics.. I hope we get enough..

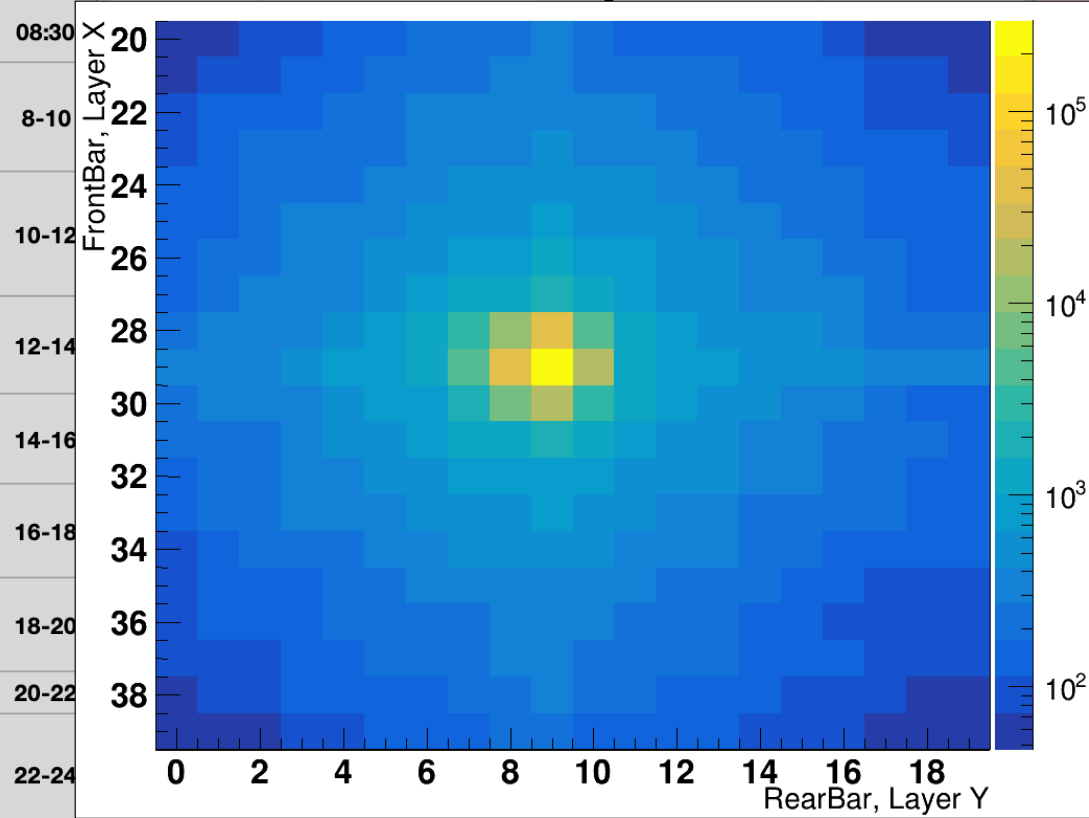
# Summary of the data-taking

free cave

access with



|     | 11             | 12     | 13      | 14        | 15   | 16                          |
|-----|----------------|--------|---------|-----------|--|-----------------------------|
|     | Sunday         | Monday | Tuesday | Wednesday | Thursday                                       | Friday                      |
|     | Dim-           | Lun-   | Mar-    | Mer-      | Jeu-   | Ven-                        |
| 0-6 | 200 MeV/u Beam |        |         |           | Sleep  | (6) TARGET 2 - Minimum Bias |
| 6-8 | Travel         |        | Sleep   | Sleep     | Choo Beam on (200 and 400MeV/u) and adjustment |                             |



The beam was not very narrow (larger than a ToF bar) thus we decide to do not spent time in configure the fragmentation trigger and run only in minimum bias

With a firmware change it would be possible to solve the problem.. next time!



free cave ac



# Summary of the data-taking

|       | 11             | 12   | 13   | 14  | 15   |  |
|-------|----------------|--|--|---|--|--|
|       | Sunday         | Monday   | Tuesday  | Wednesday   | Thursday   |  |
|       | Dim-           | Lun-   | Mar-   | Mer-  | Jeu-   |  |
| 0-6   | 400 MeV/u Beam |  |  |   | Sleep  |  |
| 6-8   | Travel         |  | Sleep  | Sleep   | 6h30 Beam on (2 400MeV/u) and adj                    |  |
| 08:30 | Travel         | Morning  | Morning  | Morning Meeting@Cafeteria                                       | 9h30 Low Intensity S for reduction both (goal 2-3 kH |  |
| 8-10  | Travel         | <div>With Vertex! (CH of 10 mm)</div> <div>The 400 MeV/u was narrow enough to be contained in a ToF bar =&gt; we implement the fragmentation trigger</div> |  |   | DAQ system Vertex with new system full integration   |  |
| 10-12 | Travel         |  |  |   | 11h experiment safety check Trigger system           |  |
| 12-14 | Travel         |  |  |   | Lunch - 12:45 Accelerator Meeting                    |  |
| 14-16 | Travel         |  |  |   | General DAQ Test, detector by detector               |  |
| 16-18 | Travel         |  |  |   | Pedestal Runs  |  |
| 18-20 | Travel         | FW Mechanics MSD and Vertex  | Dosimeter test Detectors on-off on the beam line | Cosmics   | (5) TARGET 1 - Minimum Bias                          |  |
| 20-22 | Travel         | Dinner   | Dinner   | Dinner  | (6) TARGET 2 - Minimum Bias                          |  |
| 22-24 | partita :)     | Relax  | Relax  | "Final" Geometry measurements => Remove detector from beam line | (12) TARGET 1 - Fragmentation Trigger                |  |

Setting a 400 MeV/u

Lunch - 12:45 Accelerator Meeting (7) calib of the ToF for 400 MeV/u (8) 400 MeV TARGET2 - Minimum Bias

(9) Test Of Fragmentation Trigger

(10) TARGET 2 - Frag.Trig

(11) TARGET 1 - Minimum Bias

(12) TARGET 1 - Fragmentation Trigger

(14) move the calorimeter at 2 degrees

Lunch(?) and dis-mount

Dis-mount

Remove Van from GSI and Relax

18.30h RDV with Uli to close the gate - Leave with the Rome Van GSI

Dinner

Sleep

Travel

Travel


Travel

Travel

Travel

Travel

!



# Summary of the data-taking

free cave

access with dosimeter

beam on

|       | 11             | 12  | 13      | 14                        | 15         | 16  | 17  | 18     |
|-------|----------------|---|---------|---------------------------|------------|---|---|--------|
|       | Sunday         | Monday  | Tuesday | Wednesday                 | Thursday   | Friday  | Saturday  | Sunday |
|       | Dim-           | Lun-  | Mar-    | Mer-                      | Jeu-       | Ven-  | Sam-  | Dim    |
| 0-6   | 400 MeV/u Beam |   |         |                           |            | - Minimum Bias  | (12) 200 MeV/u - Target 1, with vertex..                            |        |
| 6-8   | Travel         |   | Sleep   | Sleep                     | 6h30 400Me |   | (13) move the calorimeter at 4 degrees                              | Travel |
| 08:30 | Travel         | Morning   | Morning | Morning Meeting@Cafeteria | 9h30 Lo    |   |   | Travel |
| 8-10  | Travel         | With Vertex! (CH of 1   |         |                           |            |   |   | Travel |
| 10-12 | Travel         | The 400 MeV/u was not enough to be contained in the ToF bar => we implemented fragmentation trigger |         |                           |            | Setting a 400 MeV/u   | (14) move the calorimeter at 2 degrees                              | Travel |
| 12-14 | Travel         |   |         |                           |            | Lunch - 12:45 Accelerator Meeting (7) calib of the ToF for 400 MeV/u (8) 400 MeV TARGET2 - Minimum Bias | Lunch(?) and dis-mount  | Travel |
| 14-16 | Travel         |   |         |                           |            | (9) Test Of Fragmentation Trigger   | Dis-mount   | Travel |
| 16-18 | Travel         |   |         |                           |            | (10) TARGET 2 - Frag.Trig   | Remove Van from GSI and Relax                                       | Travel |
| 18-20 | Travel         |   |         |                           |            | (11) TARGET 1 - Minimum Bias  | 18.30h RDV with Uli to close the gate - Leave with the Rome Van GSI | Travel |
| 20-22 | Travel         |   |         |                           |            |   | Dinner  | Travel |
| 22-24 | partita :)     | Relax   |         |                           |            | (12) TARGET 1 - Fragmentation Trigger   | Sleep   | !      |





# Summary of the data-taking

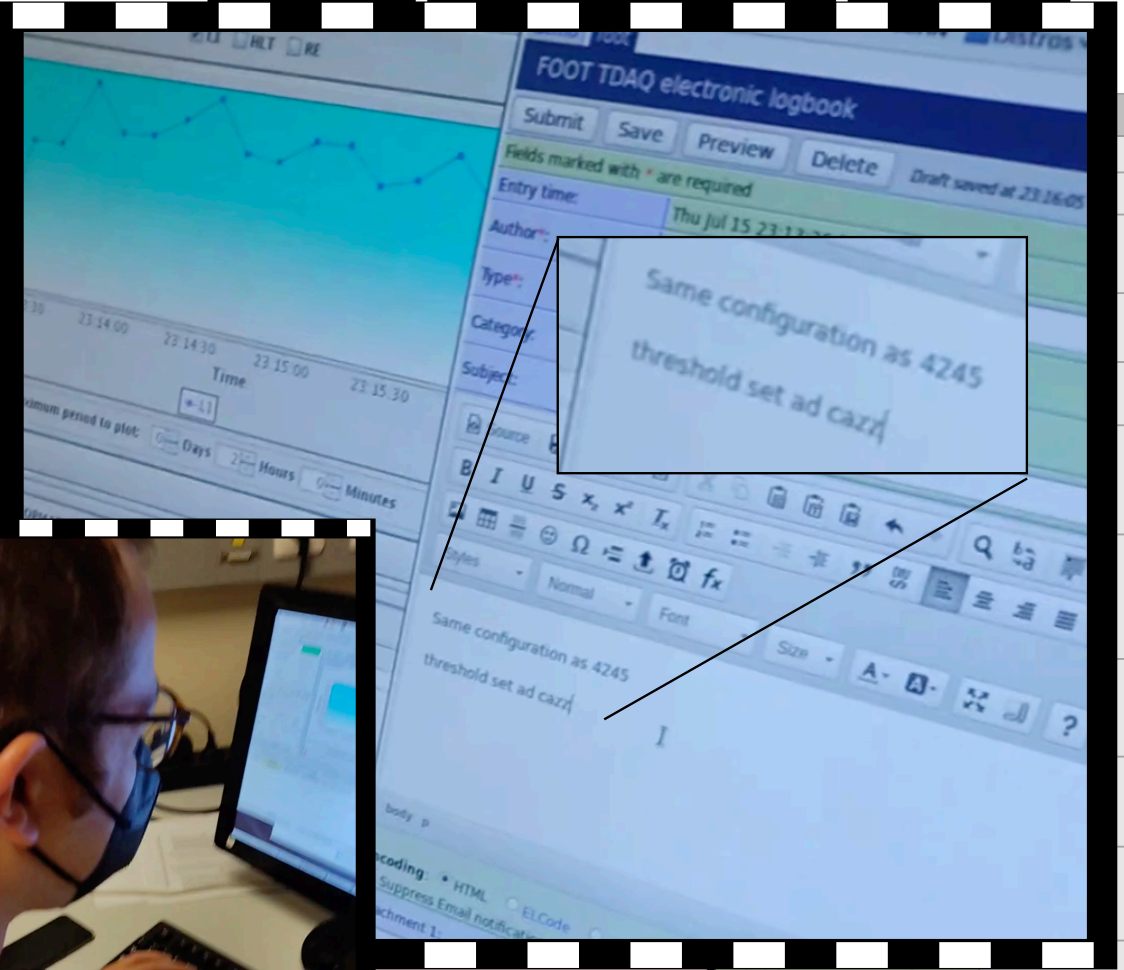
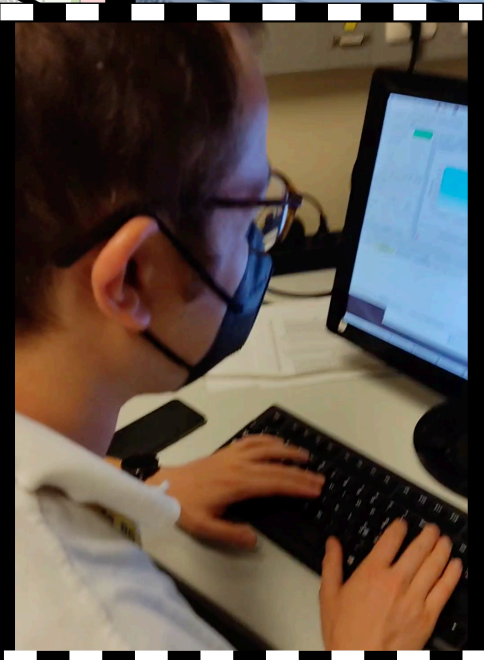
|       | 11         | 12      | 13                             | 14  |
|-------|------------|---------|--------------------------------|---|
|       | Sunday     | Monday  | Tuesday                        | Wednesday   |
|       | Dim-       | Lun-    | Mar-                           | Mer-  |
| 0-6   |            |         |                                | Sleep   |
| 6-8   | Travel     |         | Sleep                          | Sleep   |
| 08:30 | Travel     | Morning | Morning                        | Morning   |
| 8-10  | Travel     |         | Meeting@Cafeteria              | D.O. system Vertex with new system full integration |
| 10-12 | Travel     |         | 11h exper safety ch Trigger sy |   |
| 12-14 | Travel     |         | Lunch - 1 Accelerator          |   |
| 14-16 |            |         | al DA or by                    |   |
| 16-18 |            |         | estal                          |   |
| 18-20 |            |         | Cosmi                          |   |
| 20-22 |            |         | Dinne                          |   |
| 22-24 | partita :) | Relax   | Relax                          | Remove de from bear                                 |

400 MeV/u Beam

**With Vertex! (CH of 10 mm)**

The 400 MeV/u was narrow enough to be contained in a ToF bar => we implement the fragmentation trigger

Della la serie **Netflix** “Non sai cosa farei per rimanere sveglio”: Please visit the **ELOG**, download the video, thank **M.Toppi** for putting ‘soglie a cazzo’ for testing the frag.trigger and give a big hug to Ridolfi..



|                                 |  |        |
|---------------------------------|--|--------|
| TARGET 1 - Minimum Bias         | close the gate - Leave with the Rome Van GSI | Travel |
|                                 | Dinner                                       | Travel |
| ARGET 1 - Fragmentation Trigger | Sleep  | !      |

# Summary of the data-taking

free cave

access with dosimeter

beam on

|       | 11             | 12      | 13   | 14   | 15  | 16                                    | 17  | 18     |
|-------|----------------|---------|--|--|---|---------------------------------------|---|--------|
|       | Sunday         | Monday  | Tuesday  | Wednesday  | Thursday  | Friday                                | Saturday  | Sunday |
|       | Dim-           | Lun-    | Mar-   | Mer-   | Jeu-  | Ven-                                  | Sam-  | Dim    |
| 0-6   | 200 MeV/u Beam |         |  |  | Sleep   | (6) TARGET 2 - Minimum Bias           | (12) 200 MeV/u - Target 1, with vertex..                            |        |
| 6-8   | Travel         |         | Sleep  | Sleep  | 6h30 Beam on (200 and 400MeV/u) and adjustment                        |                                       | (13) move the calorimeter at 4 degrees                              | Travel |
| 08:30 | Travel         | Morning | Morning  | Morning Meeting@Cafeteria                          | 9h30 Low Intensity STS+MSD for reduction both energies (goal 2-3 kHz) |                                       |   | Travel |
| 8-10  | Travel         |         |  | DAQ system Vertex with new system full integration | (1) [standalone] CALO- Calib  |                                       | (14) move the calorimeter at 2 degrees                              | Travel |
| 10-12 | Travel         |         |  |  |   |                                       |   | Travel |
| 12-14 | Travel         |         |  |  |   |                                       | Lunch(?) and dis-mount  | Travel |
| 14-16 | Travel         |         |  |  |   |                                       | Dis-mount   | Travel |
| 16-18 | Travel         |         |  |  |   |                                       | Remove Van from GSI and Relax                                       | Travel |
| 18-20 | Travel         | Vertex  | Dosimeter test Detectors on-off on the beam line |  |   |                                       | 18.30h RDV with Uli to close the gate - Leave with the Rome Van GSI | Travel |
| 20-22 | Travel         | Dinner  | Dinner   |  |   |                                       | Dinner  | Travel |
| 22-24 | partita :)     | Relax   | Relax  | Remove detector from beam line                     |   | (12) TARGET 1 - Fragmentation Trigger | Sleep   | !      |

**With Vertex!**

Event if already configured, every time you switch on and off an energy at low intensity the beam can change in shape and position.. We had been lucky.. the beam positioning was better (more central and narrow)..





# Summary of the data-taking

free cave

access with dosimeter

beam on

|       | 11             | 12      | 13      | 14  | 15   | 16  | 17  | 18     |
|-------|----------------|---------|---------|---|--|---|---|--------|
|       | Sunday         | Monday  | Tuesday | Wednesday   | Thursday                                       | Friday  | Saturday  | Sunday |
|       | Dim-           | Lun-    | Mar-    | Mer-  | Jeu-   | Ven-  | Sam-  | Dim    |
| 0-6   | 200 MeV/u Beam |         |         |   | Sleep  | (6) TARGET 2 - Minimum Bias   | (12) 200 MeV/u - Target 1, with vertex..                            |        |
| 6-8   | Travel         |         | Sleep   | Sleep   | 6h30 Beam on (200 and 400MeV/u) and adjustment |   | (13) move the calorimeter at 4 degrees                              | Travel |
| 08:30 | Travel         | Morning | Morning | Morning   |  |   |   | Travel |
| 8-10  | Travel         |         |         | Meeting   |  |   |   | Travel |
| 10-12 | Travel         |         |         | DAQ sys with new full int                                       |  | Setting a 400 MeV/u   | (14) move the calorimeter at 2 degrees                              | Travel |
| 12-14 | Travel         |         |         | 11h ex safety Trigger   |  | Lunch - 12:45 Accelerator Meeting (7) calib of the ToF for 400 MeV/u (8) 400 MeV TARGET2 - Minimum Bias | Lunch(?) and dis-mount  | Travel |
| 14-16 | Travel         |         |         | Lunch Accelerator   | No Target Runs (4) Alignment and corrections   | (9) Test Of Fragmentation Trigger   | Dis-mount   | Travel |
| 16-18 | Travel         |         |         | General DAQ Test, detector by detector                          | Pedestal Runs                                  | (10) TARGET 2 - Frag.Trig   | Remove Van from GSI and Relax                                       | Travel |
| 18-20 | Travel         |         |         | (5) TARGET 1 - Minimum Bias                                     | Cosmics  | (11) TARGET 1 - Minimum Bias  | 18.30h RDV with Uli to close the gate - Leave with the Rome Van GSI | Travel |
| 20-22 | Travel         | Dinner  | Dinner  | Dinner  |  |   | Dinner  | Travel |
| 22-24 | partita :)     | Relax   | Relax   | "Final" Geometry measurements => Remove detector from beam line | (6) TARGET 2 - Minimum Bias                    | (12) TARGET 1 - Fragmentation Trigger   | Sleep   | !      |

## With Vertex!

Event if already configured, every time you switch on and off an energy at low intensity the beam can change in shape and position.. We had been lucky.. the beam positioning was better (more central and narrow)..


the fragmentation trigger configuration was quite quick.. ..no more features from wavedaq..

# Summary of the data-taking

free cave

access with dosimeter

beam on

|   | 11        | 12   |   | 16                                    | 17  | 18     |
|---|-----------|--|---|---------------------------------------|---|--------|
|   | Sunday    | Monday   |   | Friday                                | Saturday                                      | Sunday |
|   | Dim-      | Lun-   |   | Ven-                                  | Sam-  | Dim    |
| 0-6   | 200 MeV/u |  |  |                                       |   |        |
| 6-8   | Travel    |  |   |                                       | (12) 200 MeV/u - Target 1, with vertex..      |        |
| 08:30   | Travel    | Morning Meeting@Cafeteria                                  |   |                                       | (13) move the calorimeter at 4 degrees        | Travel |
| 8-10  | Travel    | Unload Van/Materials                                       |   |                                       |   | Travel |
| 10-12   | Travel    | All material in cave                                       |   |                                       | (14) move the calorimeter at 2 degrees        | Travel |
| 12-14   | Travel    | Lunch - 12:45 Accelerator Meeting                          |   |                                       |   |        |
| 14-16   | Travel    | Kallax Mounting in cave, software mounting in control room |   |                                       |   |        |
| <div>Della la serie Netflix “Non sai cosa farei per rimanere sveglio”: Please visit the ELOG and download the promotional video of the extra beautiful ‘Morrocchi-tool’</div> |           |  |   | (6) TARGET 2 - Minimum Bias           |   |        |
|   |           |  |   | Setting a 400 MeV/u                   |   |        |
|   |           |  |   |                                       | and dis-mount                                 | Travel |
|   |           |  |   |                                       | s-mount                                       | Travel |
|   |           |  |   |                                       | Van from GSI and Relax                        | Travel |
|   |           |  |   |                                       | RDV with Uli to the gate - Leave Rome Van GSI | Travel |
|   |           |  |   |                                       | Dinner  | Travel |
|   |           |  |   | (12) TARGET 1 - Fragmentation Trigger | Sleep   | !      |
|   |           |  | from beam line  |                                       |   |        |

Unfortunately we had no time to take both targets.. we decide to full explore the C target achievable physics moving the calorimeter in two positions

# Summary of the data-taking

Link to the run-list of GSI

<https://docs.google.com/spreadsheets/d/1ImCGFijqZw0rcIB4AfE0V-3SekhQxpz04vHlbWBhwn8/edit#gid=1438553235>

