



# p-TP Evaporation on *ZAOT* Dichroic Filters ProtoDUNE Run2 Vertical Drift

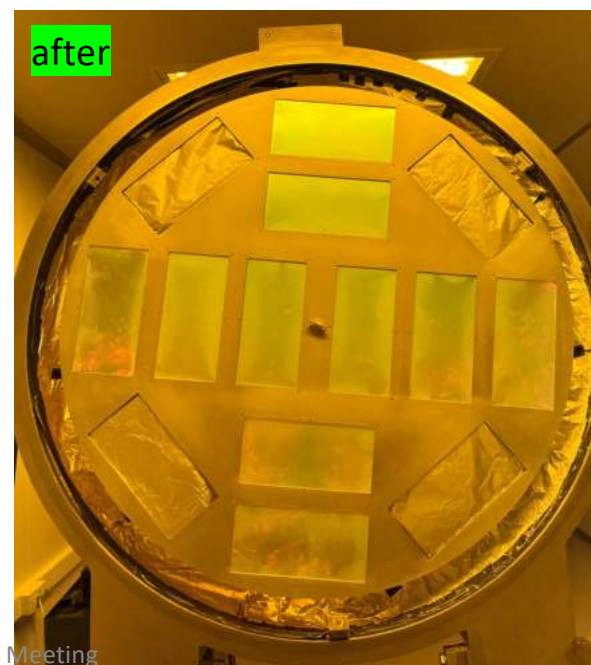
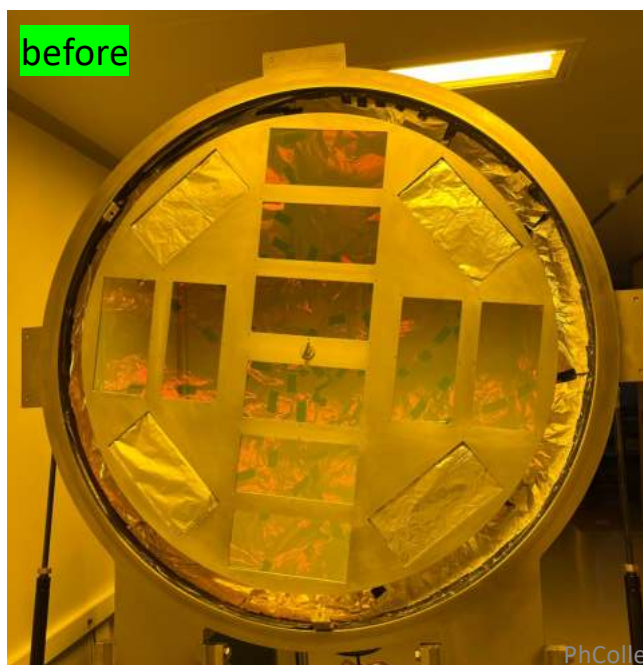
Report 01

Maria Cecilia Q. Bazetto  
Rafael Merlo, Francisco Marques, Ettore Segreto, Ana Machado

- 20 Dichroic Filters (ZAOT 202x97.5x1.1mm)
- 2 pTP evaporations: 10 DF on 03/10/22  
10 DF on 04/10/22

Date	Size	Disc position	Mass before	Mass after
03/10/22	200 x 100	Central (1)	48,5567 g	48,6670 g
03/10/22	200 x 100	Middle (5)	48,2025 g	48,2885 g
03/10/22	200 x 100	External (13)	48,2025 g	48,2548 g
N. filters = 10			pTP = 4,07 g	Pc=6,1*10-6 mbar

Date	Size	Disc position	Mass before	Mass after
04/10/22	200 x 100	Central (1)	48,3153 g	48,413 g
04/10/22	200 x 100	Middle (5)	48,3392 g	48,413 g
04/10/22	200 x 100	External (13)	48,0145 g	48,057 g
N. filters = 10			pTP = 4,003 g	Pc=5,3*10-6 mbar



- Shipment Details (From: UNICAMP To: CERN)

## Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

**Tracking Number**

1ZE286536794119153

**Weight**

2.30 KGS

**Service**

UPS Worldwide Expedited

**Shipped / Billed On**

13/10/2022

**Delivered On**

25/10/2022 10:58

**Delivered To**

MEYRIN, CH

**Received By**

MANUEI

**Left At**

Reception

Please print for your records as photo and details are only available for a limited time.

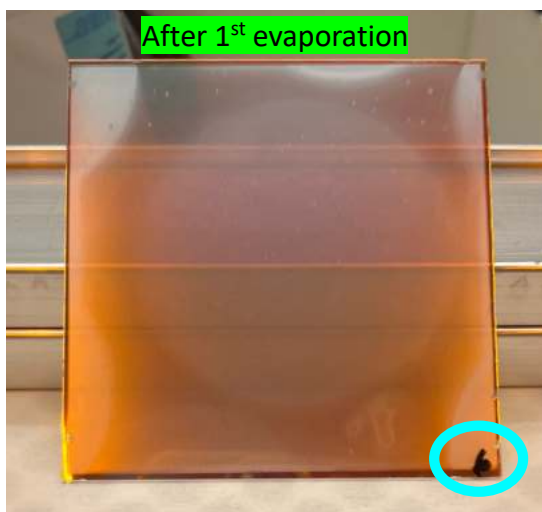
Sincerely,

UPS

<b>SHIP TO</b>
<b>Tax ID/VAT No.:</b>
<b>Contact Name:</b> JOHANN POIROT CERN SITE DE MEYRIN ROUTE DE MEYRIN, ENTREE D BUILDING 194  GENEVE, 23 1211  Switzerland <b>Phone:</b> 75 4118083 (887)

“Defected” DF

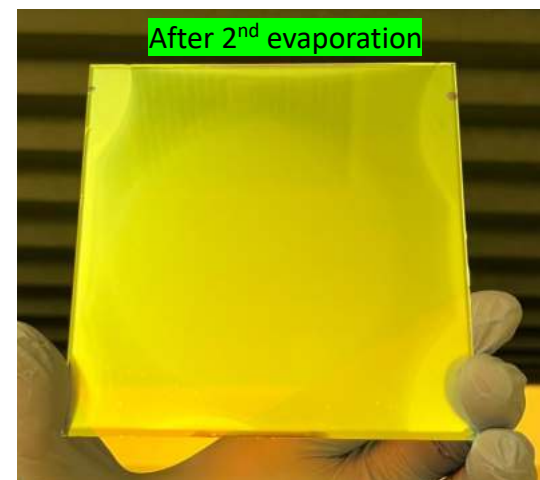
- 40 Dichroic Filters (ZAOT 97x97mm); 3 of them are @Unicamp
- 2 pTP evaporations: 04/11/22 - 17 DF  
08/11/22 - 20 DF



After 1<sup>st</sup> it was observed rounded marks in the surface and numbers on the corners;



The 37 filters were sent for cleaning at the CTI and returned (31/10/2022) to Unicamp to evaporation;



After cleaning and 2<sup>nd</sup> evaporation it was observed that the rounded marks remained on the filters.



1<sup>st</sup> evaporation

Date	Size	Disc position	Mass before	Mass after
18/10/22	97 x 97	Middle (3)	23,25060 g	23,28957 g
18/10/22	97 x 97	Middle (11)	23,25053 g	23,27348 g
N. filters = 20		pTP = 4,010 g		Pc=8,2*10 <sup>-6</sup> mbar

2<sup>nd</sup> evaporation

Date	Size	Disc position	Mass before	Mass after
04/11/22	97 x 97	Middle (3)	23,25989 g	23,29698 g
04/11/22	97 x 97	Middle (14)	23,05213 g	23,07413 g
N. filters = 20		pTP = 4,0243 g		Pc=3,6*10 <sup>-6</sup> mbar

Date	Size	Disc position	Mass before	Mass after
21/10/22	97 x 97	Middle (3)	23,17285 g	23,21069 g
21/10/22	97 x 97	Middle (11)	23,26888 g	23,29184 g
N. filters = 20		pTP = 4,0090 g		Pc=7,7*10 <sup>-6</sup> mbar

Date	Size	Disc position	Mass before	Mass after
08/11/22	97 x 97	Middle (3)	23,26855 g	23,30714 g
08/11/22	97 x 97	Middle (11)	23,10480 g	23,12775 g
N. filters = 17		pTP = 4,0219 g		Pc=5,2*10 <sup>-6</sup> mbar

- Shipment Details (From: UNICAMP To: CERN)

## Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

**Tracking Number**

1ZE286536791072173

**Weight**

2.00 KGS

**Service**

UPS Worldwide Expedited

**Shipped / Billed On**

09/12/2022

**Delivered On**

20/12/2022 11:36

**Delivered To**

MEYRIN, CH

**Received By**

STEFAN

**Left At**

Reception

Please print for your records as photo and details are only available for a limited time.

Sincerely,

UPS

<b>SHIP TO</b>
<b>Tax ID/VAT No.:</b>
<b>Contact Name: JOHANN POIROT</b>
CERN SITE DE MEYRIN
ROUTE DE MEYRIN, ENTREE D
BUILDING 194
GENEVE, 23 1211
Switzerland
<b>Phone: 75 4118083 (887)</b>

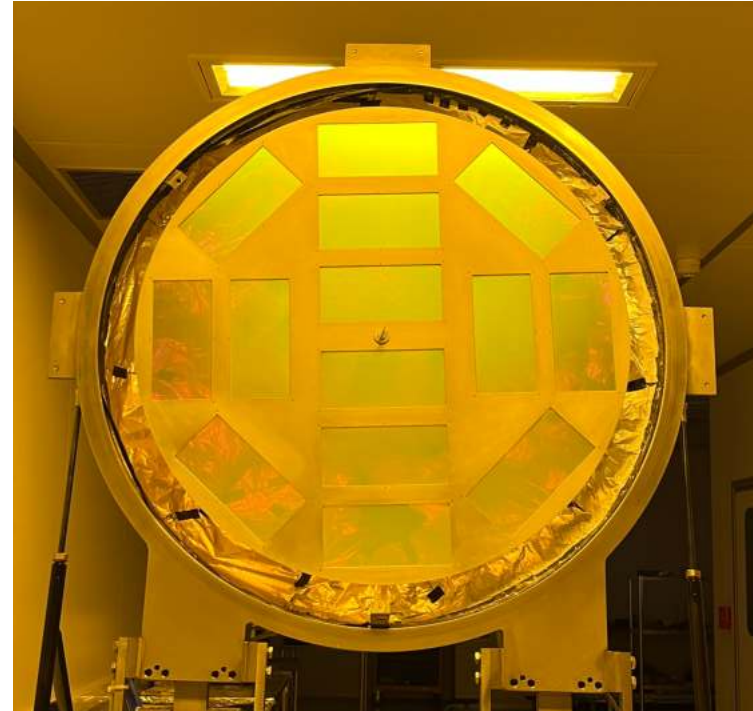
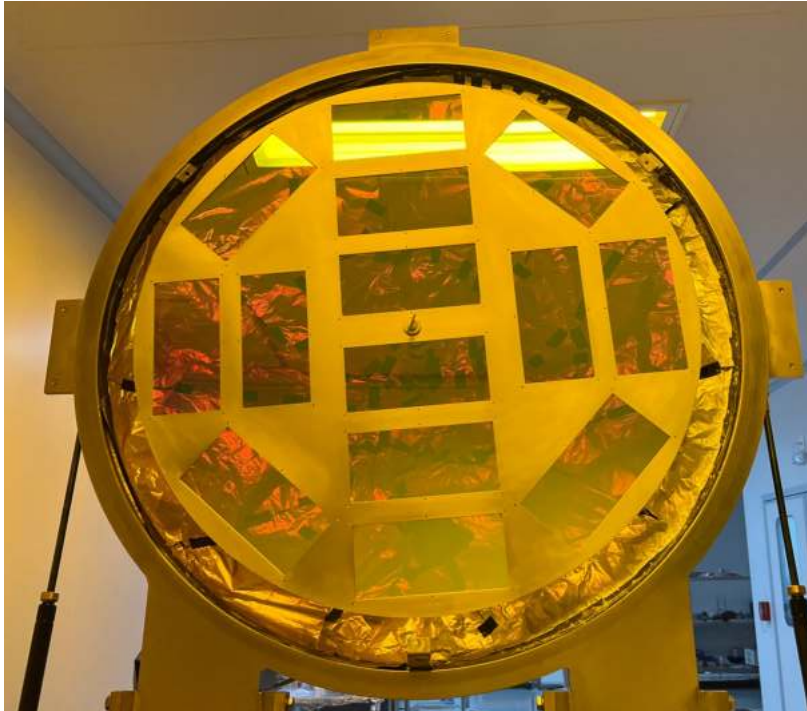
- 126 Dichroic Filters
  - Boxes 01, 02, 03 – 26 DF each box (ZAOT 202x97.5x1.1mm)
  - Boxes 04, 05 – 21 DF each box (ZAOT 202x97.5x1.1mm)
  - Box 06 – 6 DF (100x77mm)
- 
- 10 pTP evaporations: Run 01 - 14 DF on 01/12/22
  - Run 02 - 14 DF on 02/12/22
  - Run 03 - 14 DF on 02/12/22
  - Run 04 - 14 DF on 05/12/22
  - Run 05 - 14 DF on 05/12/22
  - Run 06 - 14 DF on 06/12/22
  - Run 07 - 14 DF on 06/12/22
  - Run 08 - 14 DF on 06/12/22
  - Run 09 - 08 DF on 07/12/22
  - Run 10 - 06 DF on 07/12/22



Evaporation\_Run 01

December\_2022

01/12/22 - 14 DF (ZAOT 202x97.5x1.1mm)



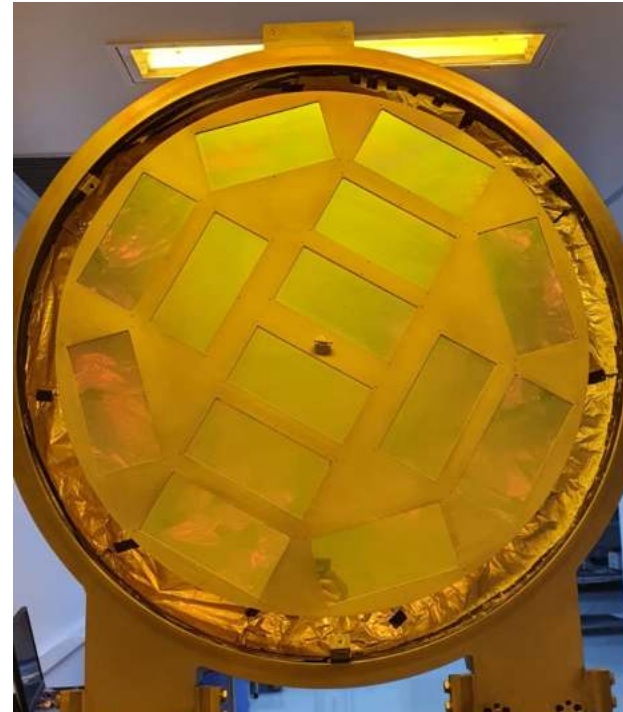
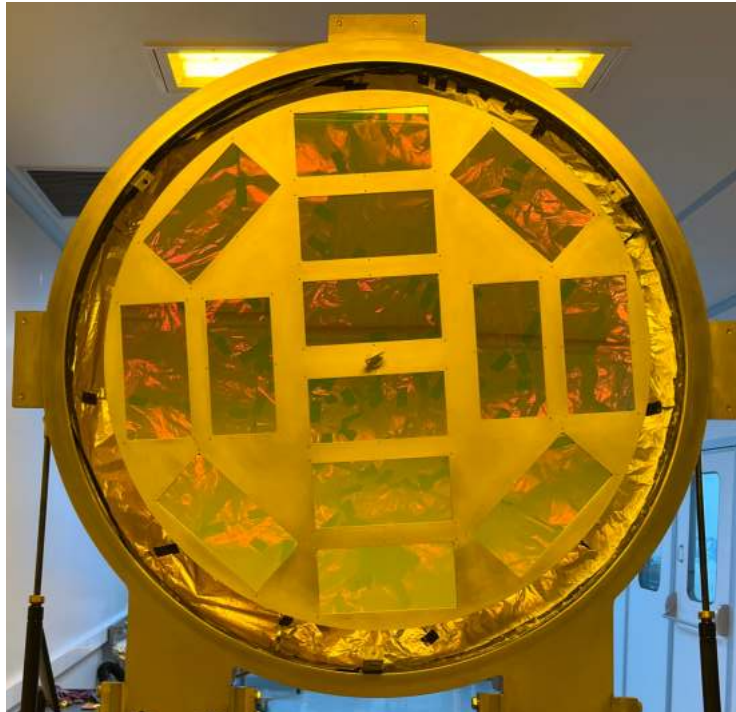
Date	Size	Disc position	Mass before	Mass after
01/12/22	200 x 100	Central (1)	47,96 g	48,05 g
01/12/22	200 x 100	Middle (4)	48,46 g	48,53 g
01/12/22	200 x 100	External (11)	47,91 g	47,95 g
N. filters = 14		pTP = 3,997 g		Pc=6,9*10-6 mbar



Evaporation\_Run 02

02/12/22 - 14 DF (ZAOT 202x97.5x1.1mm)

December\_2022

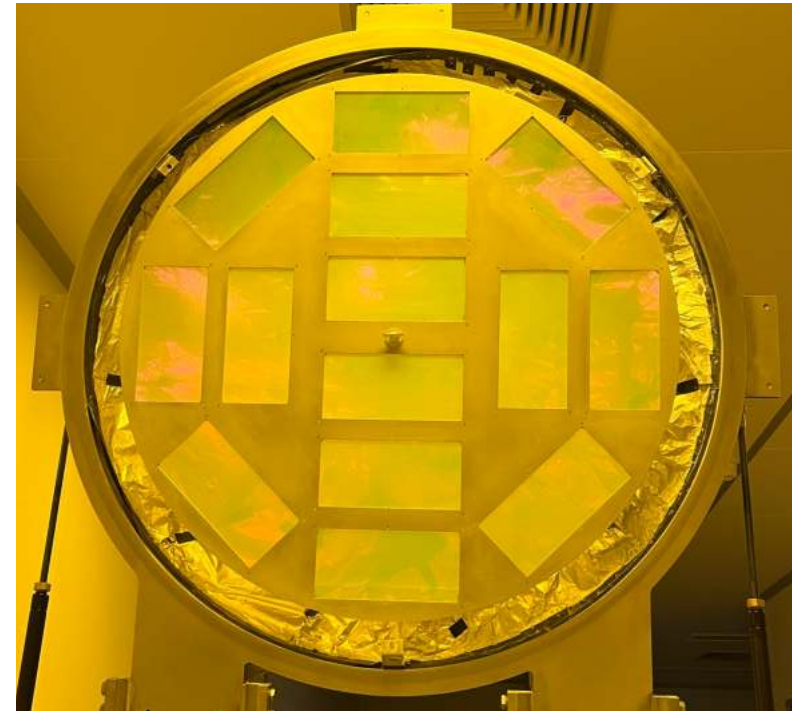


Date	Size	Disc position	Mass before	Mass after
02/12/22	200 x 100	Central (1)	47,89 g	48,03 g
02/12/22	200 x 100	Middle (4)	48,39 g	48,49 g
02/12/22	200 x 100	External (11)	48,19 g	48,25 g
N. filters = 14		pTP = 4,001 g		Pc=2,0*10 <sup>-5</sup> mbar

Evaporation\_Run 03

December\_2022

02/12/22 - 14 DF (ZAOT 202x97.5x1.1mm)

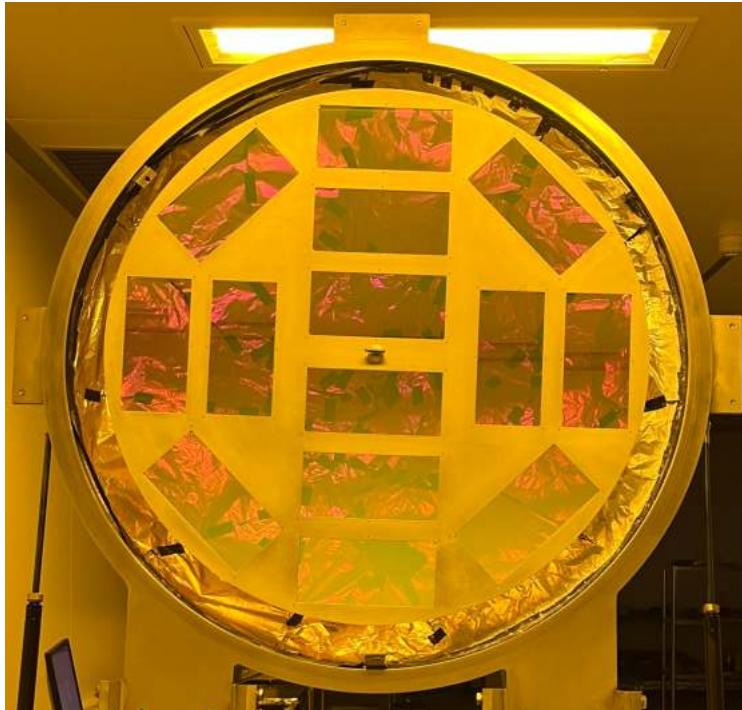


Date	Size	Disc position	Mass before	Mass after
02/12/22	200 x 100	Central (1)	48,17 g	48,25 g
02/12/22	200 x 100	Middle (4)	48,35 g	48,41 g
02/12/22	200 x 100	External (11)	48,00 g	48,02 g
N. filters = 14		pTP = 4,008 g		Pc=1,3*10 <sup>-5</sup> mbar

Evaporation\_Run 04

05/12/22 - 14 DF (ZAOT 202x97.5x1.1mm)

December\_2022

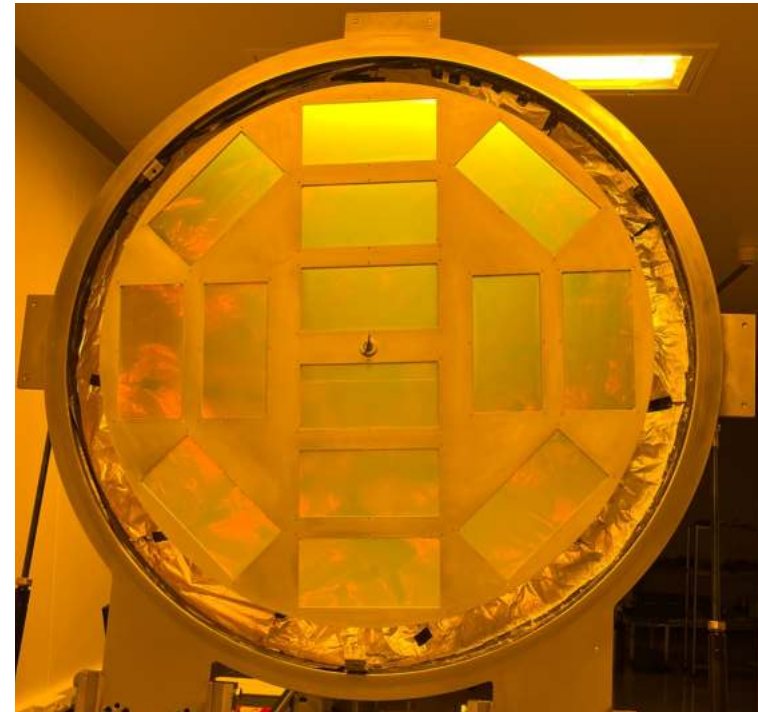
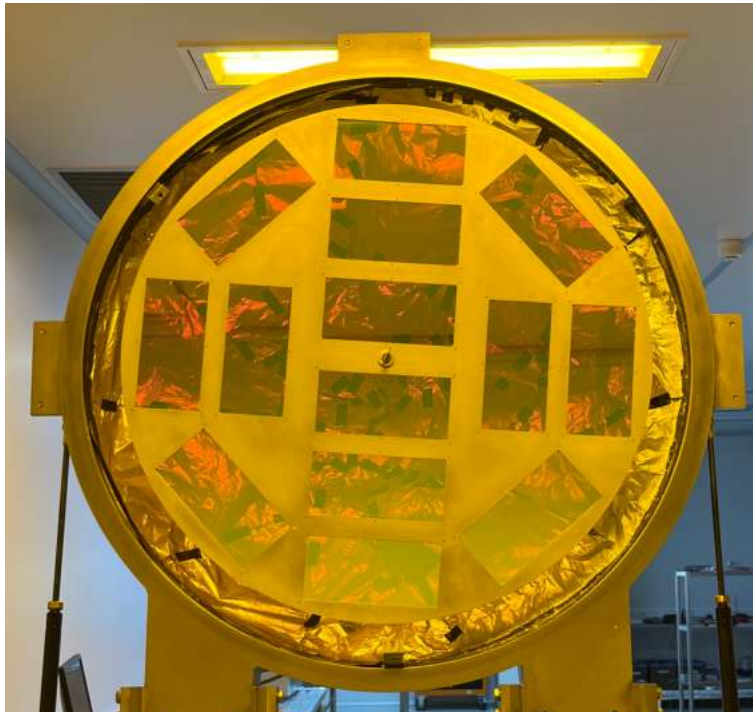


Date	Size	Disc position	Mass before	Mass after
05/12/22	200 x 100	Central (1)	48,52 g	48,63 g
05/12/22	200 x 100	Middle (4)	48,52 g	48,60 g
05/12/22	200 x 100	External (11)	48,14 g	48,20 g
N. filters = 14		pTP = 4,003 g		Pc=8,3*10-6 mbar

Evaporation\_Run 05

05/12/22 - 14 DF (ZAOT 202x97.5x1.1mm)

December\_2022

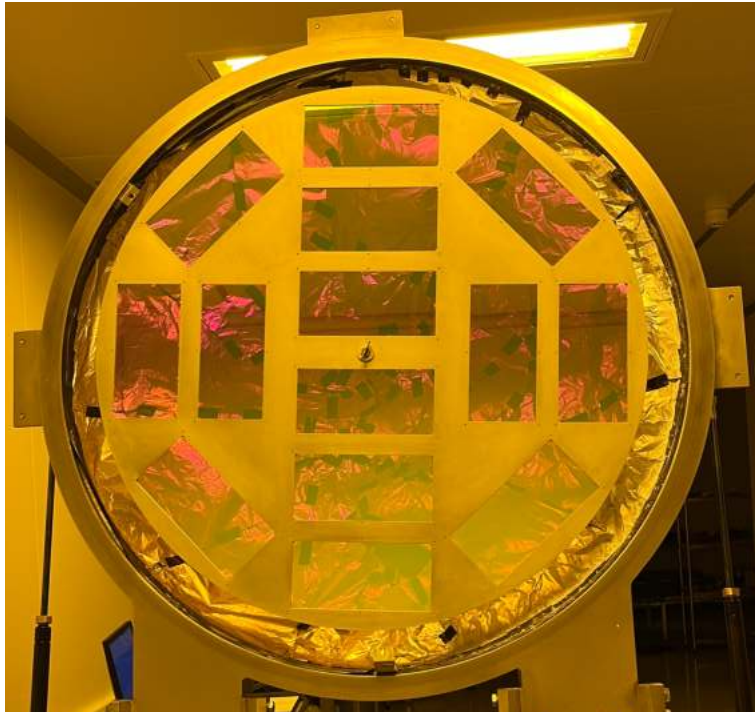


Date	Size	Disc position	Mass before	Mass after
05/12/22	200 x 100	Central (1)	48,18 g	48,31 g
05/12/22	200 x 100	Middle (4)	48,33 g	48,40 g
05/12/22	200 x 100	External (11)	48,55 g	48,59 g
N. filters = 14		pTP = 3,997 g		Pc=1,0*10 <sup>-5</sup> mbar

Evaporation\_Run 06

06/12/22 - 14 DF (ZAOT 202x97.5x1.1mm)

December\_2022

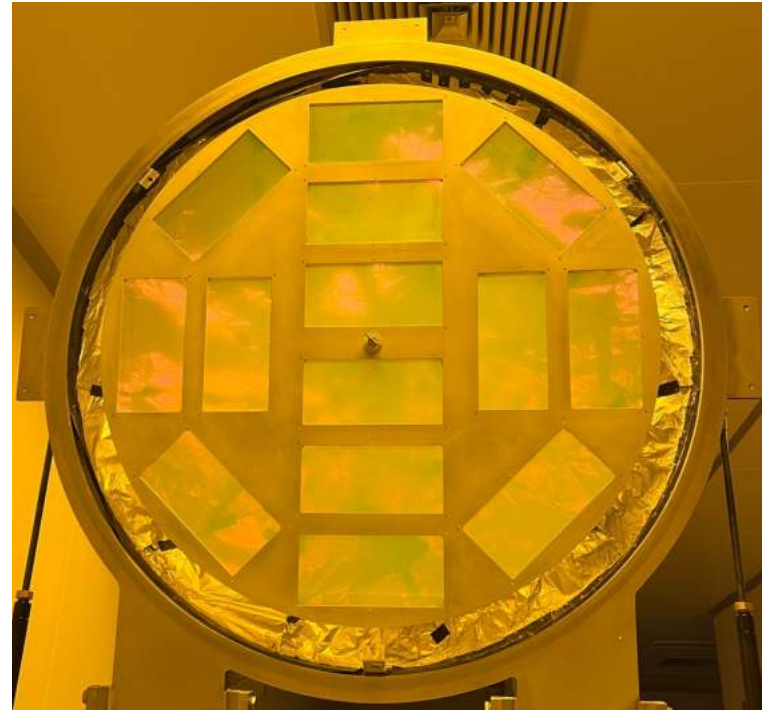


Date	Size	Disc position	Mass before	Mass after
06/12/22	200 x 100	Central (1)	48,34 g	48,47 g
06/12/22	200 x 100	Middle (4)	48,46 g	48,56 g
06/12/22	200 x 100	External (11)	48,36 g	48,42 g
N. filters = 14		pTP = 4,003 g		Pc=2,3*10 <sup>-5</sup> mbar

Evaporation\_Run 07

06/12/22 - 14 DF (ZAOT 202x97.5x1.1mm)

December\_2022

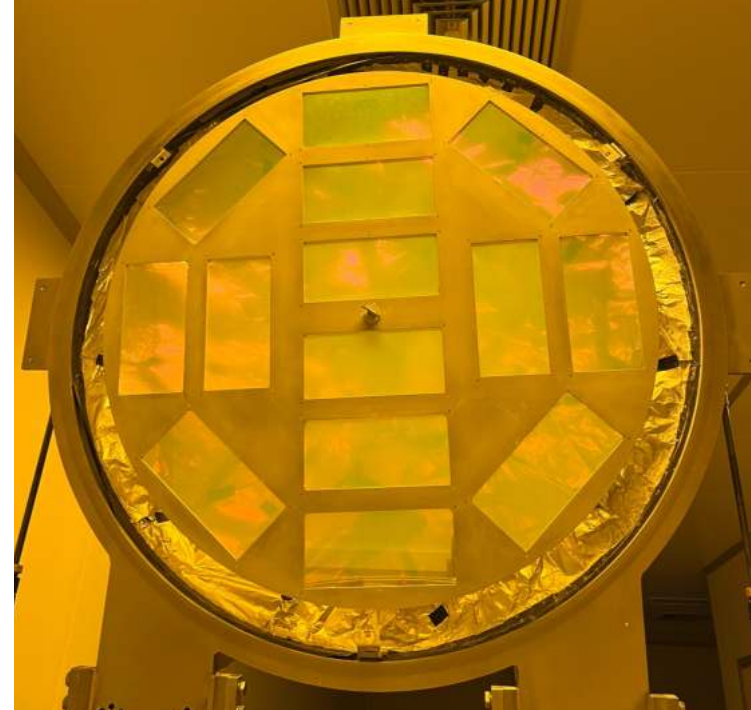
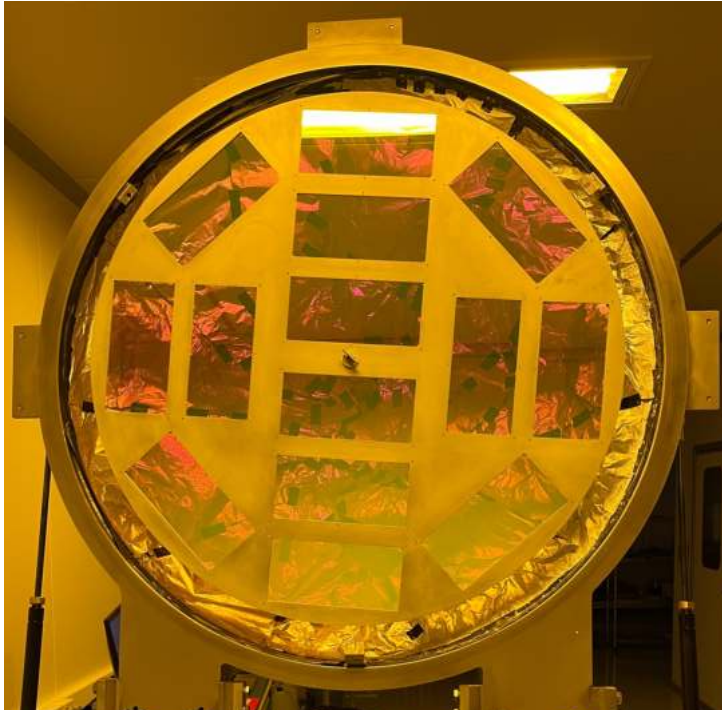


Date	Size	Disc position	Mass before	Mass after
06/12/22	200 x 100	Central (1)	48,30 g	48,40 g
06/12/22	200 x 100	Middle (4)	48,19 g	48,26 g
06/12/22	200 x 100	External (11)	48,01 g	48,04 g
N. filters = 14		pTP = 3,997 g		Pc=1,5*10 <sup>-5</sup> mbar

Evaporation\_Run 08

06/12/22 - 14 DF (ZAOT 202x97.5x1.1mm)

December\_2022

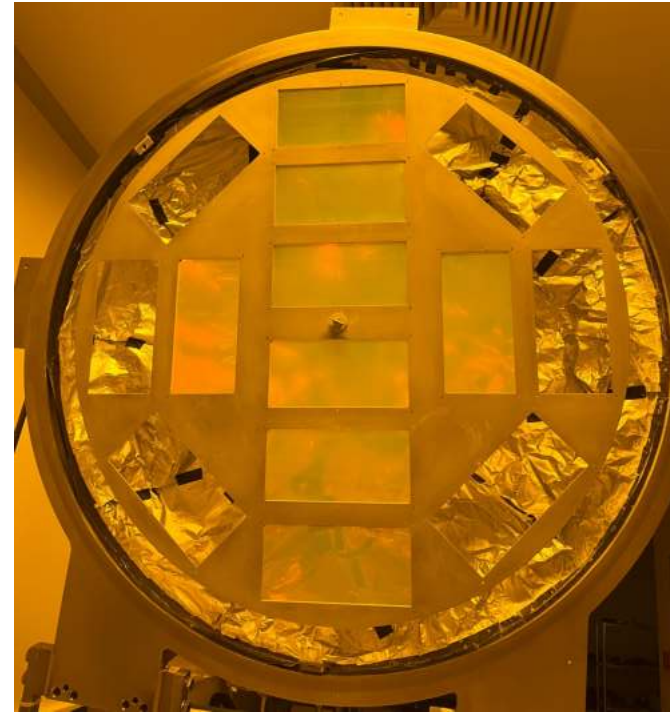
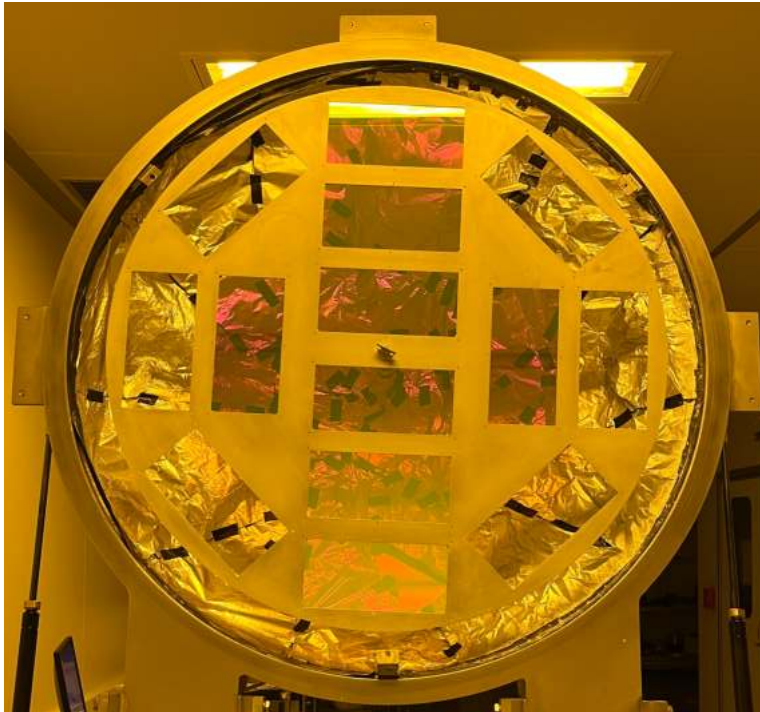


Date	Size	Disc position	Mass before	Mass after
06/12/22	200 x 100	Central (1)	48,46 g	48,56 g
06/12/22	200 x 100	Middle (4)	48,26 g	48,34 g
06/12/22	200 x 100	External (11)	48,15 g	48,18 g
N. filters = 14		pTP = 4,001 g		Pc=2,0*10 <sup>-5</sup> mbar

Evaporation\_Run 09

07/12/22 - 08 DF (ZAOT 202x97.5x1.1mm)

December\_2022

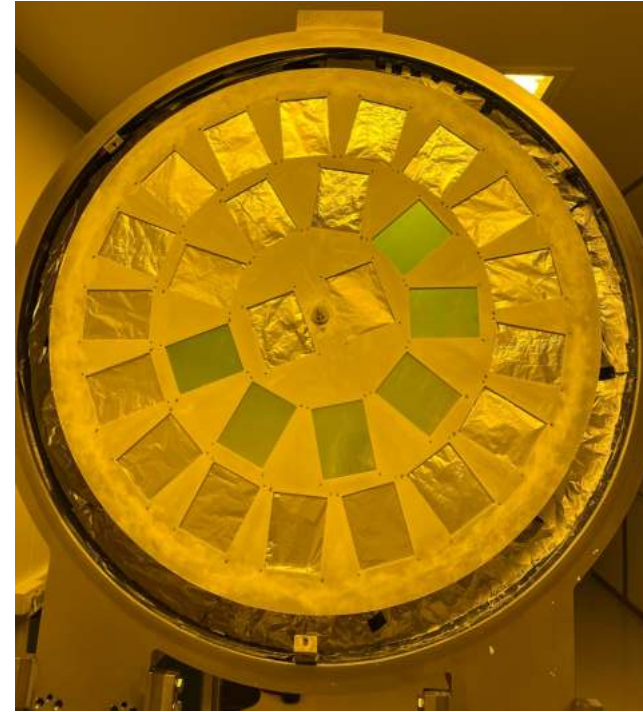
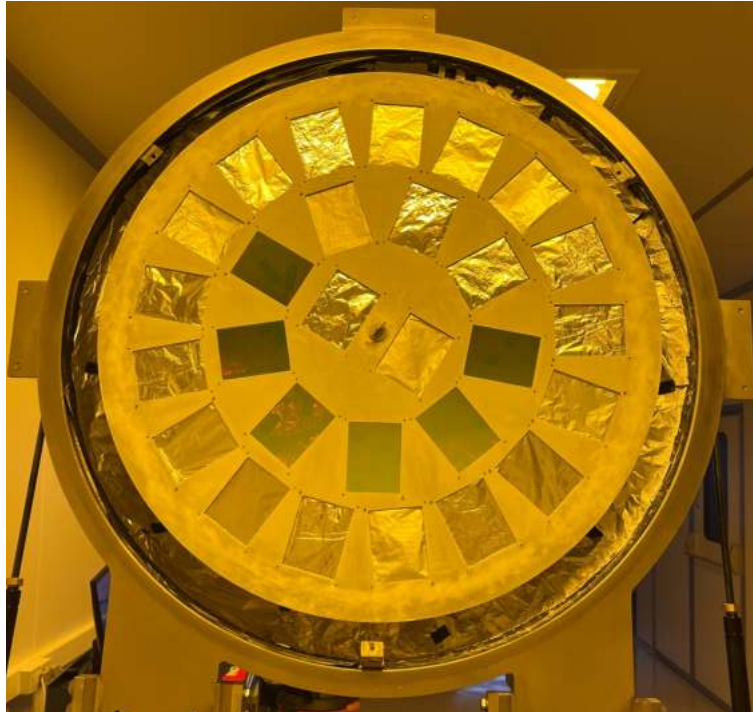


Date	Size	Disc position	Mass before	Mass after
07/12/22	200 x 100	Central (1)	48,21 g	48,34 g
07/12/22	200 x 100	Middle (4)	48,13 g	48,22 g
07/12/22	200 x 100	External (11)	48,41 g	48,45 g
N. filters = 14		pTP = 4,002 g		Pc=2,0*10 <sup>-5</sup> mbar



Evaporation\_Run 10  
 07/12/22 - 6 DF (ZAOT 100x77mm)

December\_2022

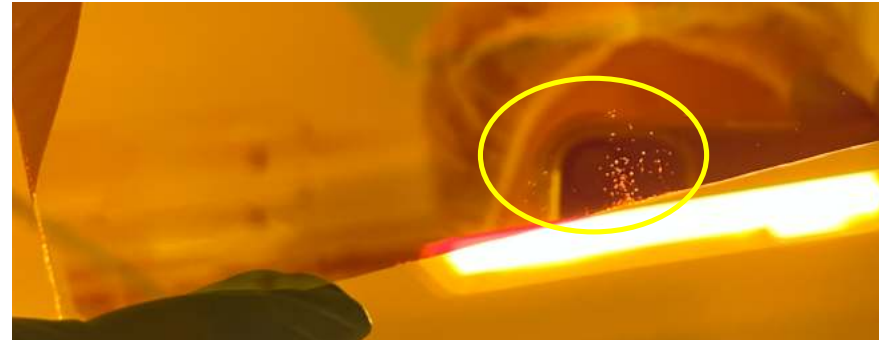
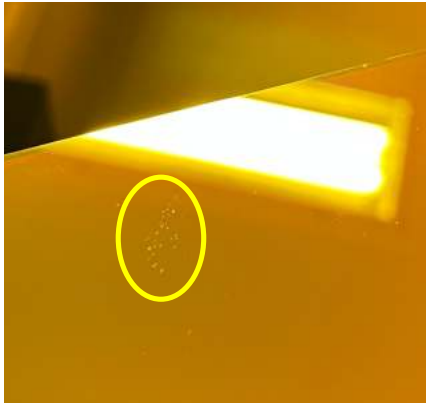


Date	Size	Disc position	Mass before	Mass after
07/12/22	77 x 100	Middle (4)	18,90946 g	18,94246 g
07/12/22	77 x 100	Middle (7)	18,99876 g	19,03178 g
N. filters = 06		pTP = 4,003 g		Pc=1,4*10 <sup>-5</sup> mbar

PhCollector Meeting

- **EXAMPLES** of DF with small dots without dichroic layers on dichroic side  
(it was observed on a quick inspection on DF)

December\_2022



- Shipment Details (From: UNICAMP To: CERN)

## Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

**Tracking Number**

1ZE286536790230388

**Weight**

9.00 KGS

**Service**

UPS Worldwide Expedited

**Shipped / Billed On**

09/12/2022

**Delivered On**

20/12/2022 11:36

**Delivered To**

MEYRIN, CH

**Received By**

STEFAN

**Left At**

Reception

Please print for your records as photo and details are only available for a limited time.

Sincerely,

UPS

<b>SHIP TO</b>
<b>Tax ID/VAT No.:</b>
<b>Contact Name:</b> JOHANN POIROT CERN SITE DE MEYRIN ROUTE DE MEYRIN, ENTREE D BUILDING 194
GENEVE, 23 1211
Switzerland
<b>Phone:</b> 75 4118083 (887)

## Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

**Tracking Number**

1ZE286536791509791

**Weight**

6.00 KGS

**Service**

UPS Worldwide Expedited

**Shipped / Billed On**

09/12/2022

**Delivered On**

20/12/2022 11:36

**Delivered To**

MEYRIN, CH

**Received By**

STEFAN

**Left At**

Reception

Please print for your records as photo and details are only available for a limited time.

Sincerely,

UPS

<b>SHIP TO</b>
<b>Tax ID/VAT No.:</b>
<b>Contact Name:</b> JOHANN POIROT CERN SITE DE MEYRIN ROUTE DE MEYRIN, ENTREE D BUILDING 194
GENEVE, 23 1211
Switzerland
<b>Phone:</b> 75 4118083 (887)