

***Small is beautiful, but  
... terribly complex!  
... terribly expensive!***

***We all have to take great care!***

**How to do our part to keep equipment in their optimal conditions ?**

Simon Levasseur, Nelson Landry  
Nathalie Bacon  
2020-12-03

***LCO lab organization***

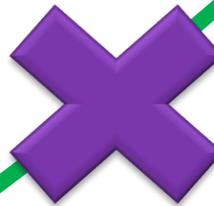
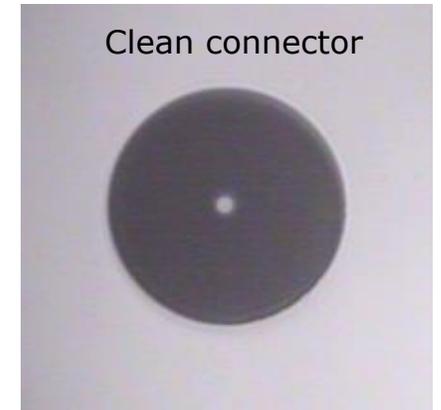
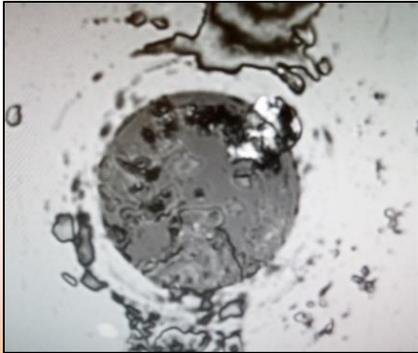
Sharing knowledge and good practices

# Optical connectors – The goal

Low standards

« Change the CULTURE in the labs »

High standards



## Conditions

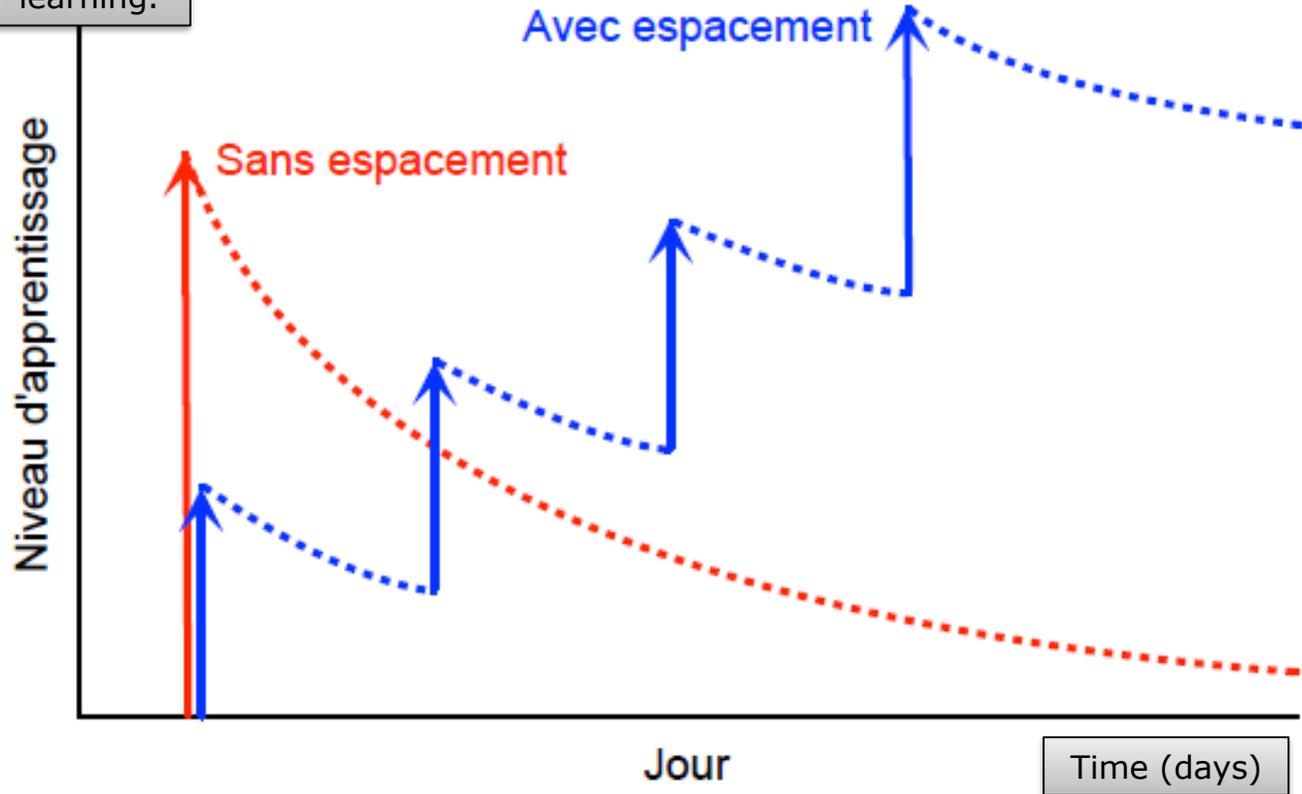
- ❖ Everybody has to take care
- ❖ Keep your knowledge up to date -> REREAD
- ❖ Adjust, « fine tune » your practices.

**Simon, Nelson, Nathalie**

- ❖ « Not a police job »
- ❖ **Sharing Knowledge and good practices**

# Biggest trap - > FORGETTING -> Trainings - Repetition and spacing

How much you remember after learning.



Repetition and spacing in learning,  
... **we learn more and forget less!**

## Training

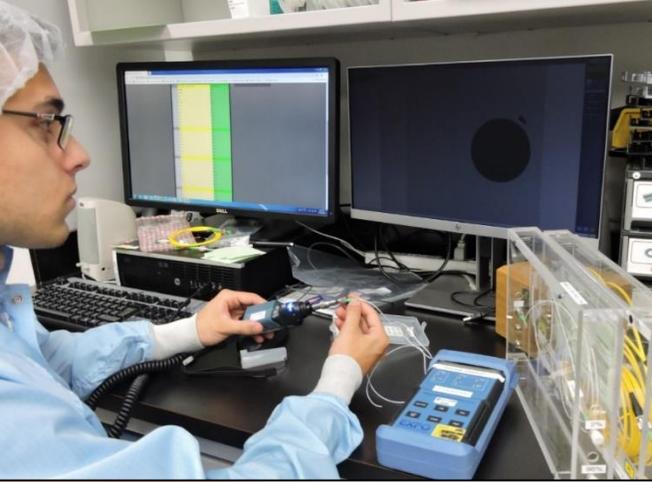
1. Read by yourself
2. Regular training by students
3. Hands-on training – (2-3hrs)

Long term:

4. **Reread** periodically...
5. Ask questions...

Figure 1. Comparaison des effets de deux pratiques d'enseignement (avec et sans espacement) sur l'apprentissage et l'oubli des élèves.

(Masson, 2016)



***NEVER ASSUME that the optical connectors are clean!***

Clean connector



## How to Handle Optical Fiber Connectors

Knowledge and good practices

Nathalie Bacon, Simon Levasseur  
2019-11-02

Jun Ho Chang and Nelson Landry  
2017.11.30

**ALWAYS INSPECT** (with viewer):  
**BOTH** connectors  
**EVERY** single time you have to mate two connectors.  
(Equipment connectors/connectors saver included!)

- **CLEAN** (if necessary):
  - 1. DRY; 2. WET & DRY
- **If impossible to clean**
  - Repolish, change patchcord, splice a pigtail.

- **NEVER** remove a connector saver on equipment I/O,
- **Add** one if necessary.

## Why closing on December 2<sup>nd</sup> ? What we did.

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### 1. Why we closed the laboratory yesterday ?

1. REMINDER of the good practices in the LCO Laboratory
2. Uniformization of the practices.

### 2. What we did ?

1. Put labels on equipment optical I/O
  1. « NEVER REMOVE PATCHCORDS »
  2. « LOWER POWER BEFORE DISCONNECTING »
  3. Fiber type: « PC / APC »
  4. Tricky ones: (soon confirmed and labelled)
    1. OSA I/O
    2. Sensor inputs
    3. 0 db Attenuators:
      1. Yes, at the end of patchcords of high-power EDFA
      2. TBD : key
2. We took note of the corrections to perform

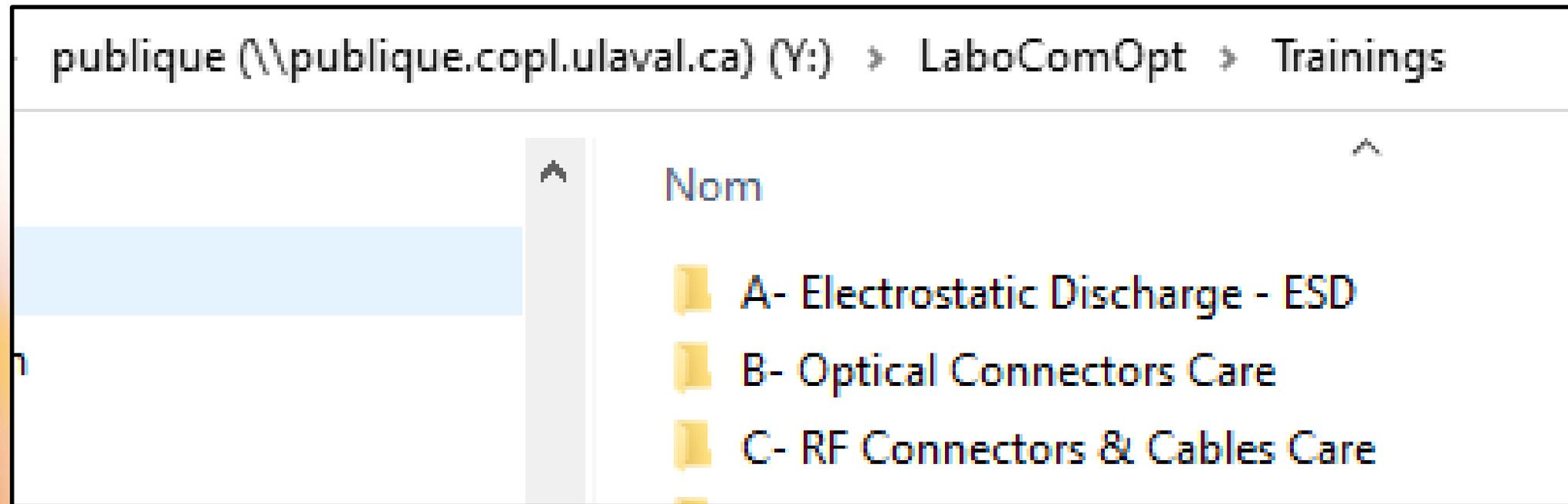
# Plan

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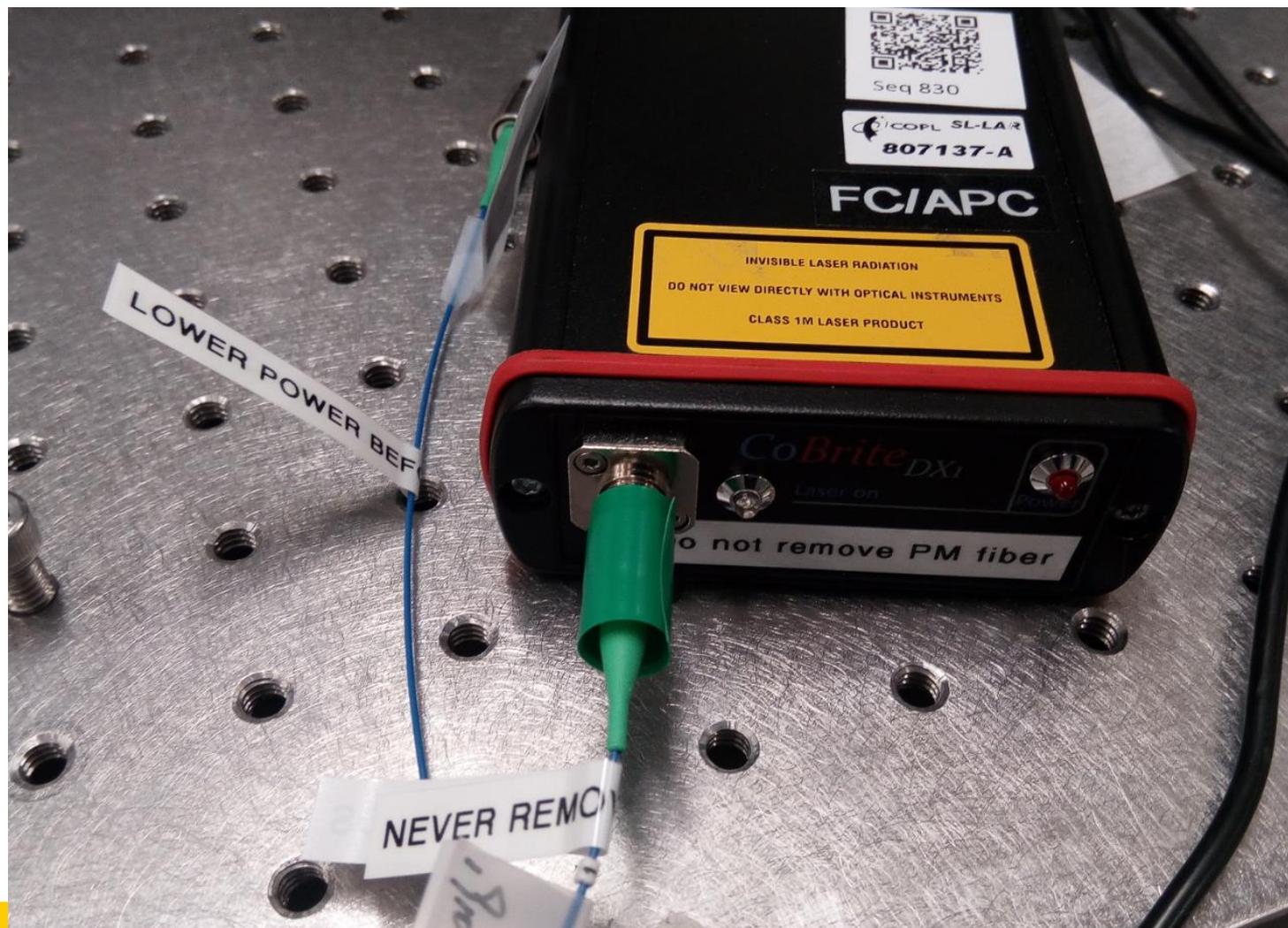
## 3. What is next ?

- ❖ Meet with the students to proceed to some corrections in their lab.
- ❖ Add a few slides to the training document with information more specific on certain types of equipment.
  - ❖ AGILENT TLA, OSA, Detector/ Sensor
- ❖ Training on polishing patchcords. (**8 students ... deadline December 11th**)
  - ❖ Not a punishment
  - ❖ An opportunity to fine tune your practices:
    - ❖ Gaining more insight about clean fiber
    - ❖ Knowing what could be done with very bad situations
- ❖ Perform a few corrections on the equipment
  - ❖ Simon, Nelson, Nathalie

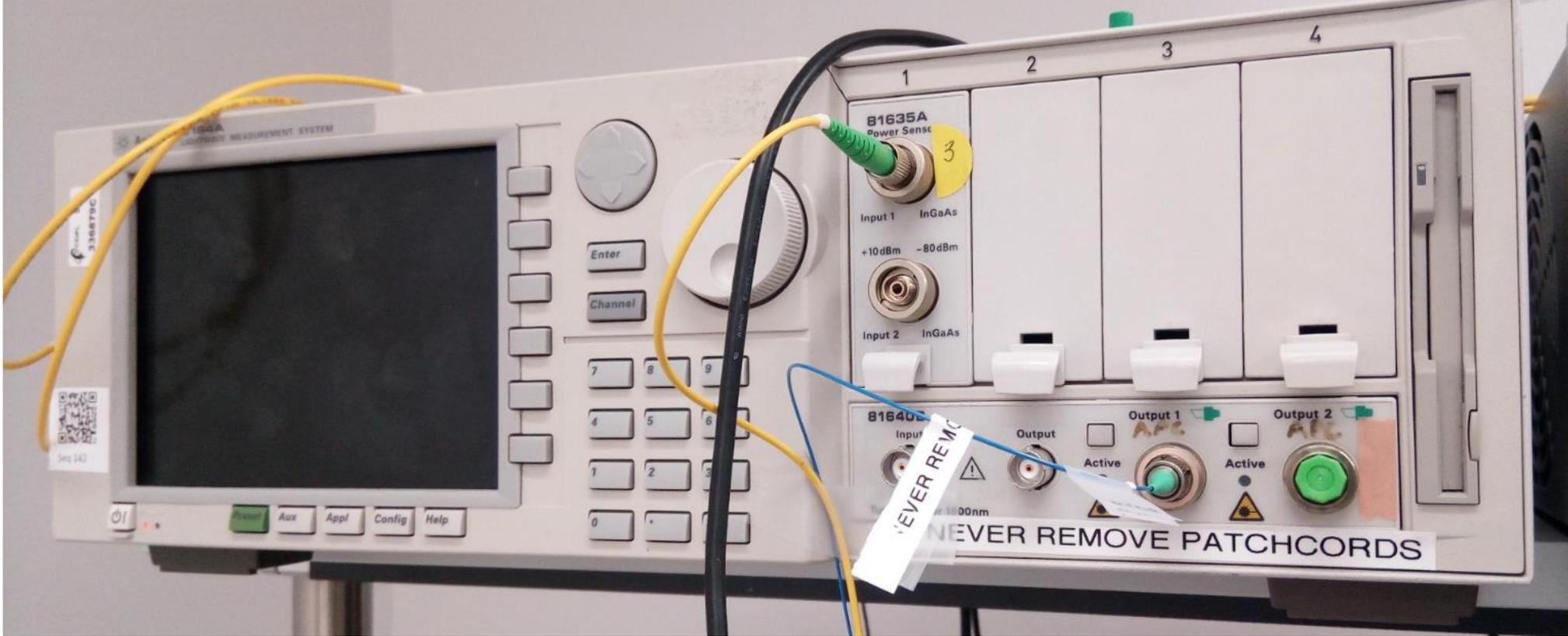
## Sharing knowledge and good practices -> Building a collective memory



## Labels as reminders (Cobrite laser DX1 and fibers)



**Labels as reminders** (*Agilent tunable laser, detector and fibers*)



## Removed patchcord as connector saver.

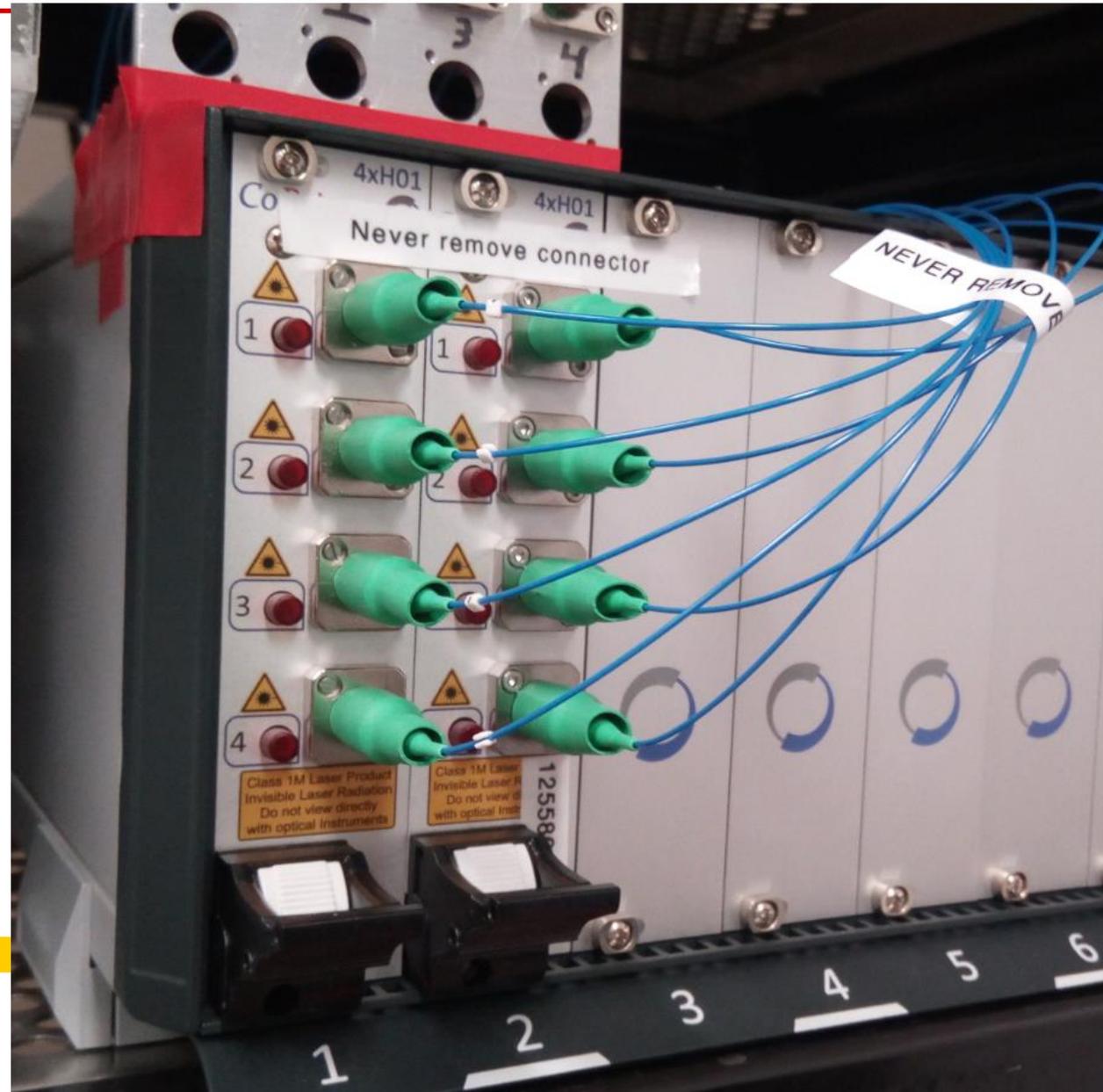


A new PM fiber has to be added as connector saver to the laser module, at the bottom right.

**Four (4) optical I/O -> 4 fibers acting as connector savers.**



## Heat shrink or tape pieces to remind the user not to unplug.



## High power EDFA (+30 dB gain) -> Use manufacturer patchcords.

Do not use standard adaptors as shown below (max 23 dBm).



MAX : 23 dBm



**OSA -> It depends. Some I/O are free space** (use your clean PC fiber),  
If not free space, use the patchcords acting as connector saver.



# No patchcord as connector saver ? Please contact us for help.

(Simon, Nelson, Nathalie)

