

# TASK 14.3.2

## INFRASTRUCTURE FOR VERY COMPACT TUNGSTEN BASED CALORIMETRY

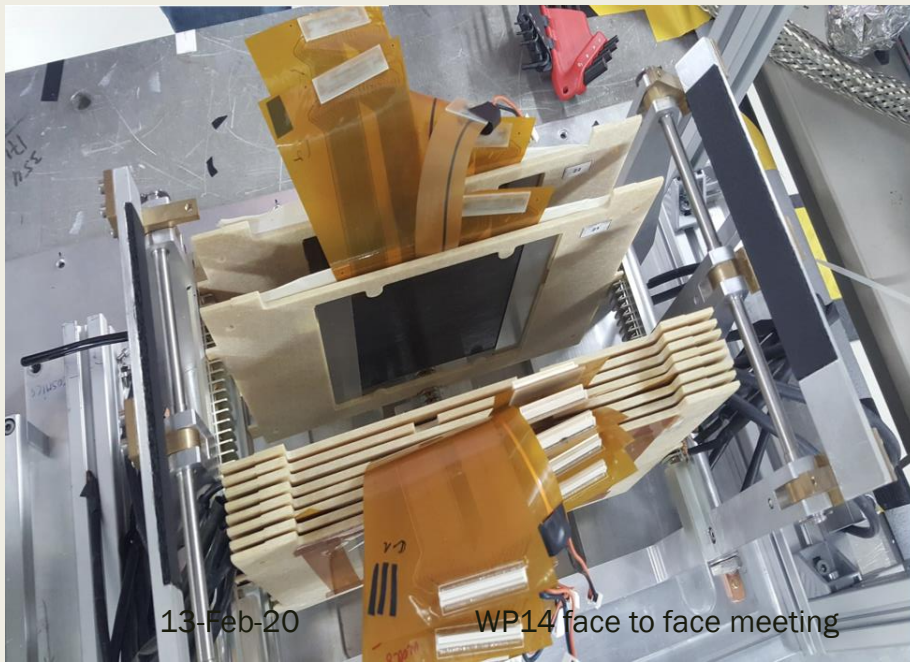
Yan Benhammou

Tel Aviv University

On behalf of the FCAL collaboration

# From 2016 to 2019

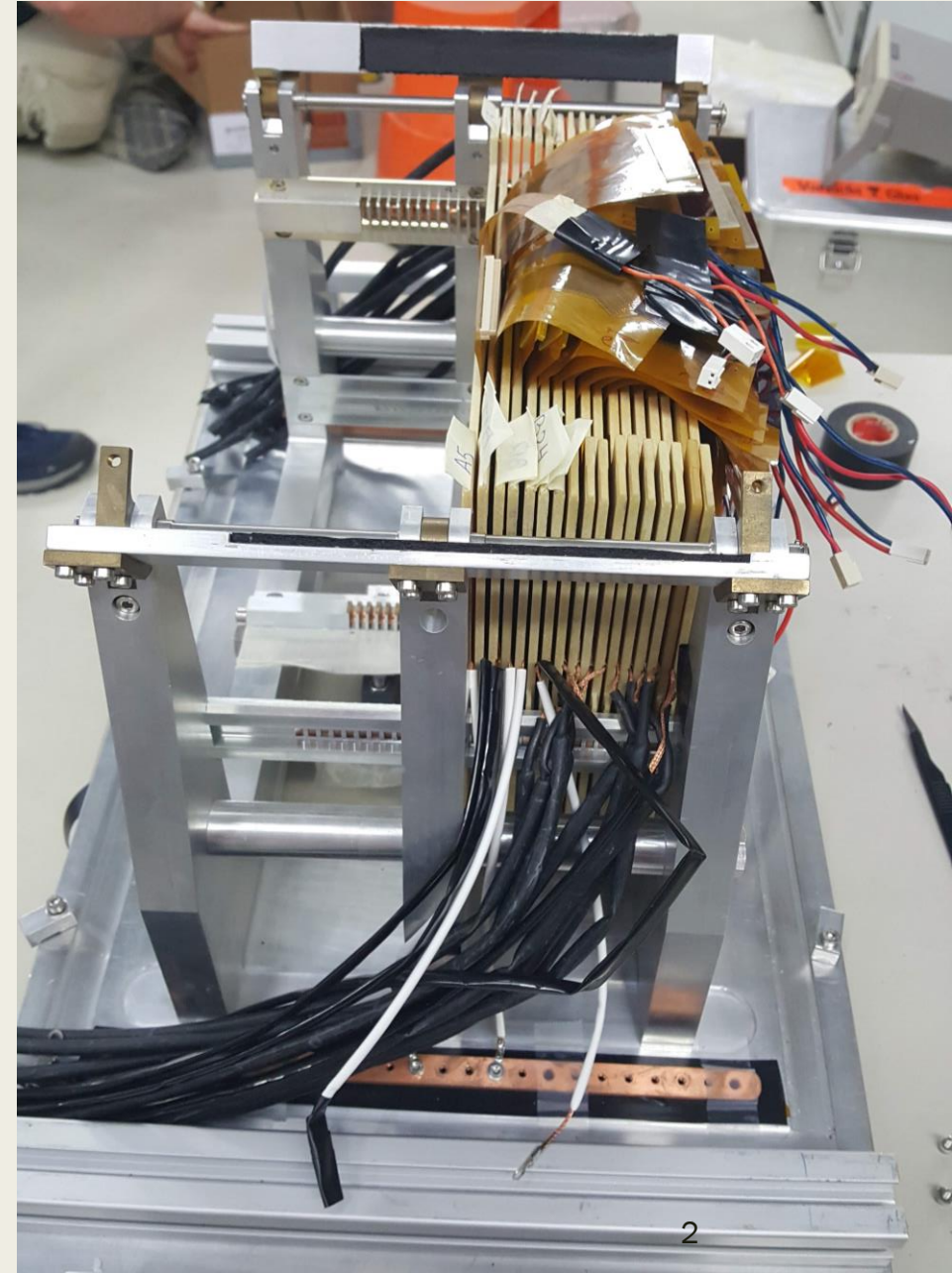
- Production of thin silicon sensors to equip a compact luminosity calorimeter
- Design and production of a dedicated readout chain : FLAME
- Production of a 18 layers compact calorimeter



13-Feb-20

WP14 face to face meeting

**Presented in the  
previous talk  
(Marek Idzik)**



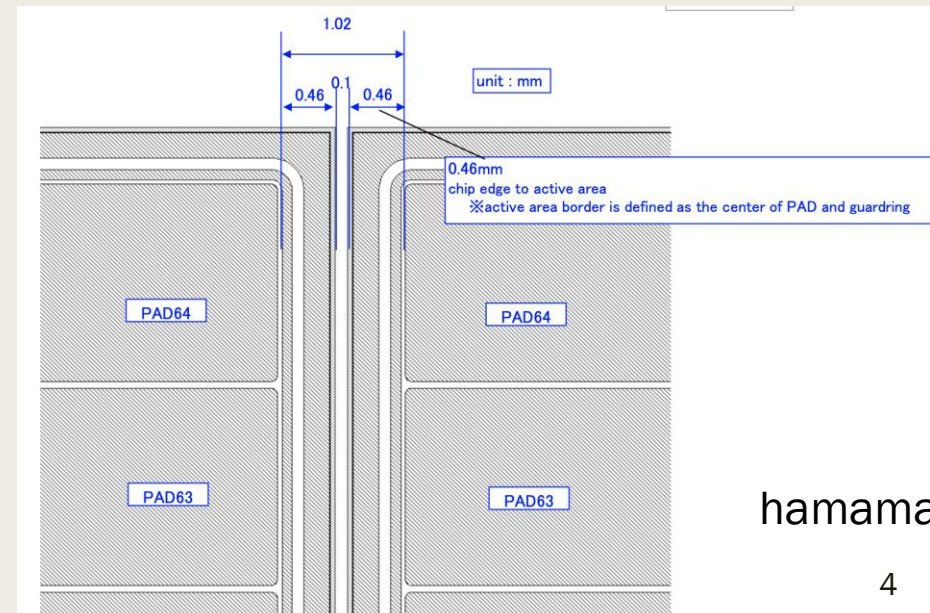
# March 2020

- Test beam at DESY :
  - *18 thin layers calorimeter*
  - *Few FLAME planes with readout and DAQ will be installed*
  - *The other layers will be readout by the usual DAQ (APV+SRS)*

# Outlooks on the future

- Upgrade of the sensors :
  - Increase the detection surface of the detectors
  - Decrease guard ring surface
  - Edgeless detectors

The possibility of this study  
is driven by budget

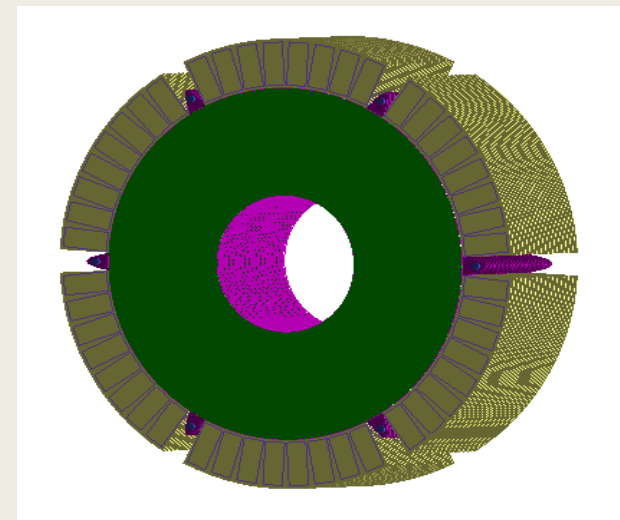
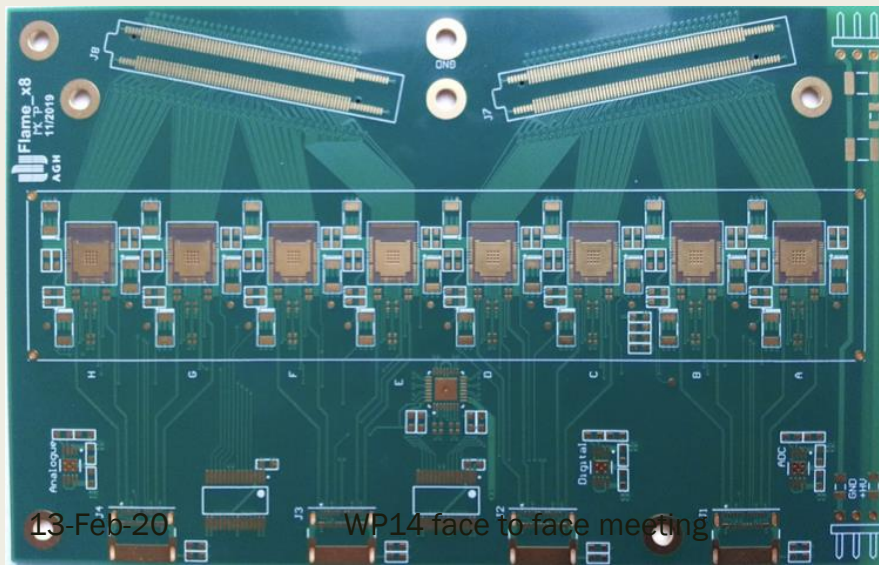


hamamatsu



# Outlooks on the future

- Upgrade of the electronics readout:
  - *Optimization of design of the front end boards according lumical design*
  - *Work on the thickness of the FEB to fit the compactness of the lumical*
- Internal alignment system is needed → **BUDGET DRIVEN**



# Outlooks on the future : goals for AIDA-innova

- Upgrade on the compact calorimeter integration
  - *Increase the quality of connection between the sensor and the readout flexible PCB*
  - *Connection optimization between sensors and front end boards*
  - *Connection optimization between front end boards and FPGA based DAQ*
  - *Study on the different PCB (flexible,...), front end boards, DAQ*

# Outlooks on the future : application in LUXE

- LUXE (Laser Und XFEL Experiment) : electron-photon interaction using DESY facilities. LOI submitted

Thin sensors calorimeter with FLAME readout

