

# Belle II Pixel Detector

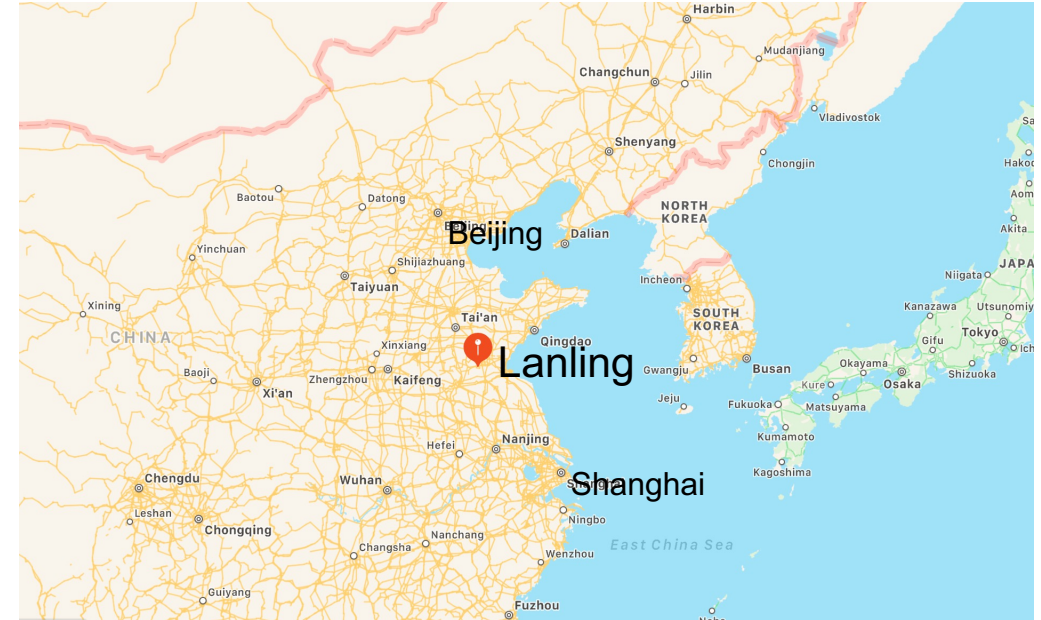
DESY Fellow Meeting

Qingyuan Liu  
25 March 2021

# About Me

## Background, past activities

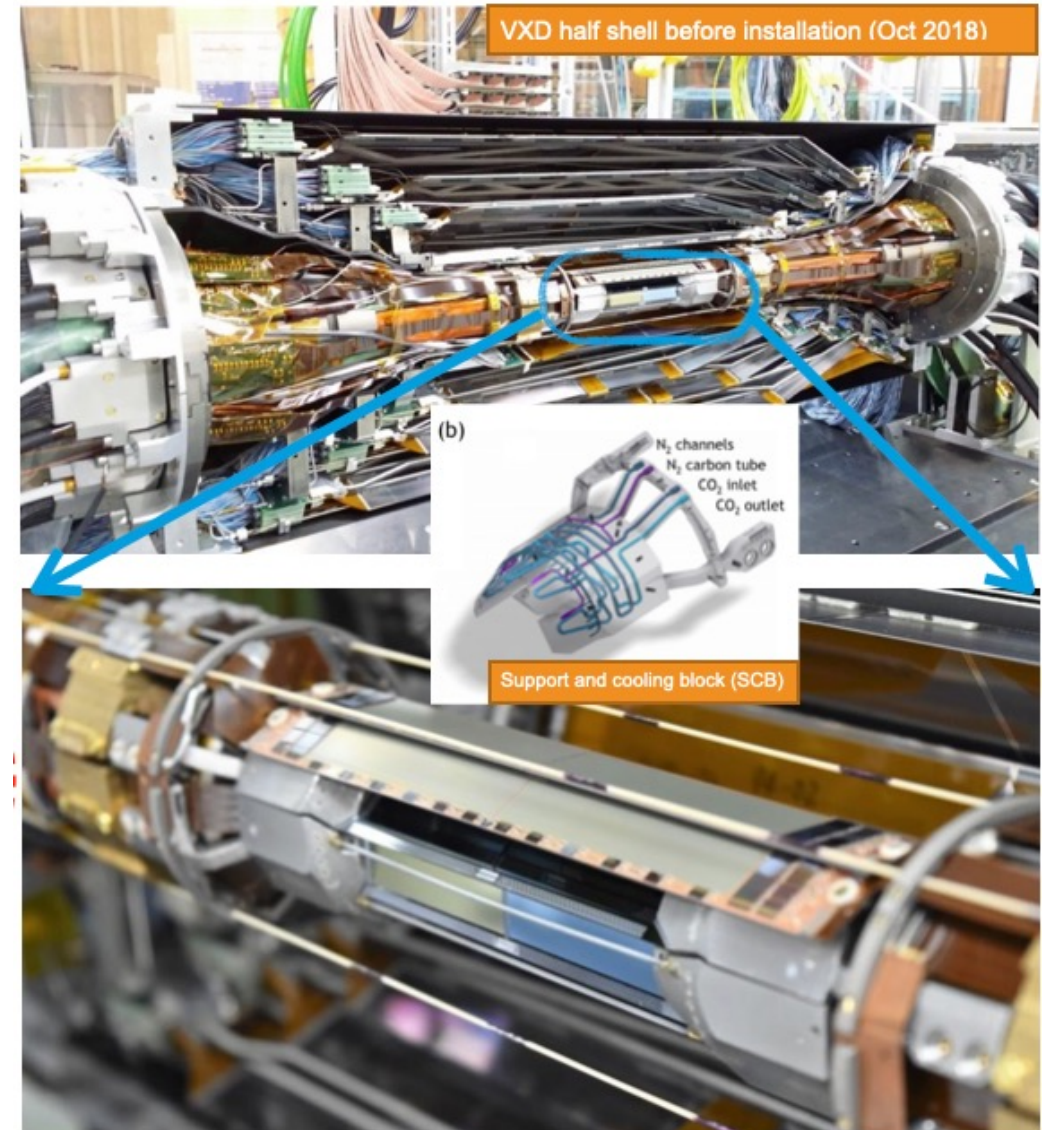
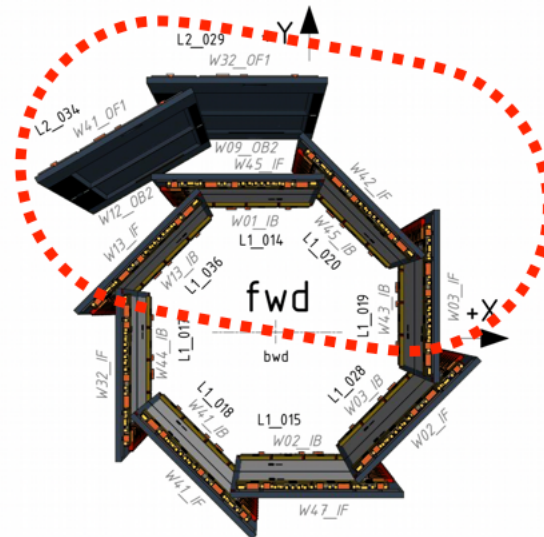
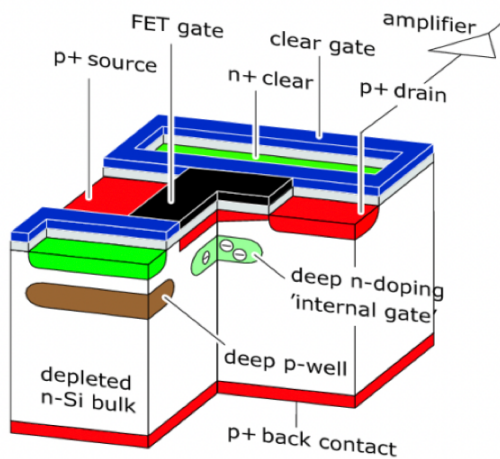
- Born at Cangshan (Lanling) county, Shandong Province, China
- Education
  - 2007 - 2017 (PhD) Shandong University
  - 2012 - 2013 (M.S.) Aix-Marseille University
    - Studied the correlation between low b-tagging rate and dead pixel modules at ATLAS
  - 2014 - 2017 (PhD) University of Strasbourg
    - CMOS Pixel Sensors (CPS) characterization
    - Design and optimization of a 3-layer barrel tracker using CPS
- 2018 - 2020 Helmholtz - OCPC Postdoc Program
  - Commissioning and optimisation of Belle II Pixel Detector (PXD)
- 2020 - present DESY fellowship



# My Current Work

## Activities and challenges

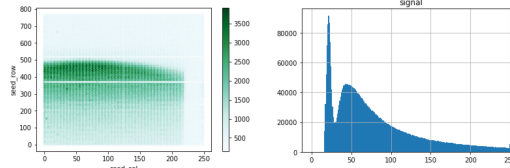
- Performance study of the 1<sup>st</sup> DEPFET based pixel detector (running at Belle II)
  - Indirect SR photon background
  - Offline Calibration:
    - Hot/dead pixel masking
    - Gain calibration (8-bit ADC output)
- Assembly and commissioning of the complete one for 2022



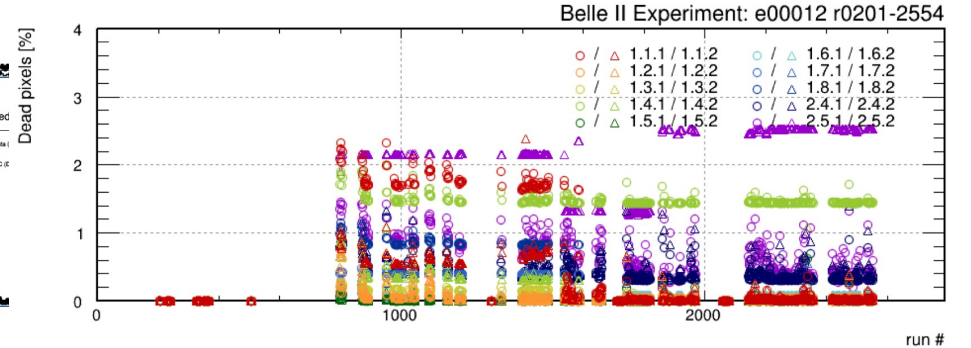
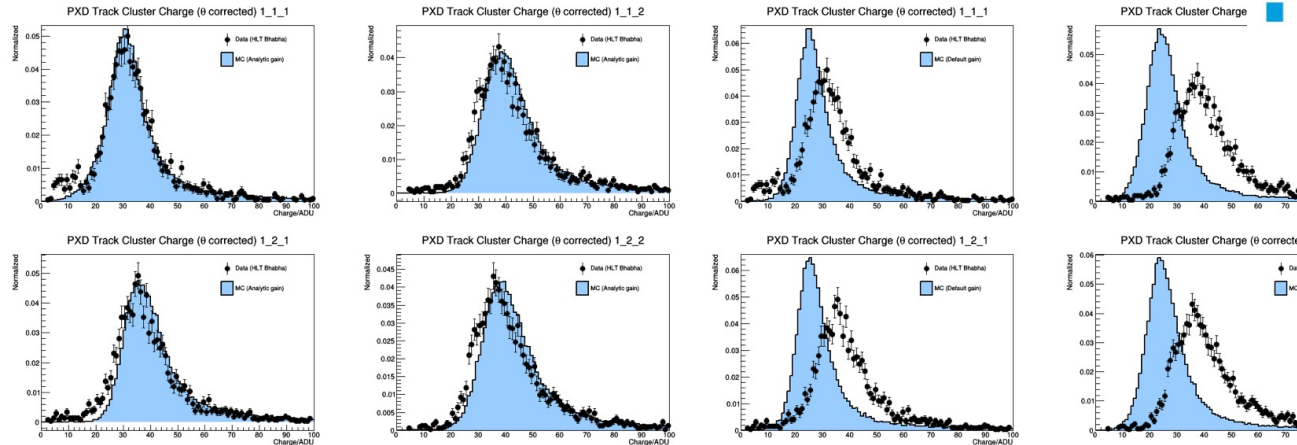
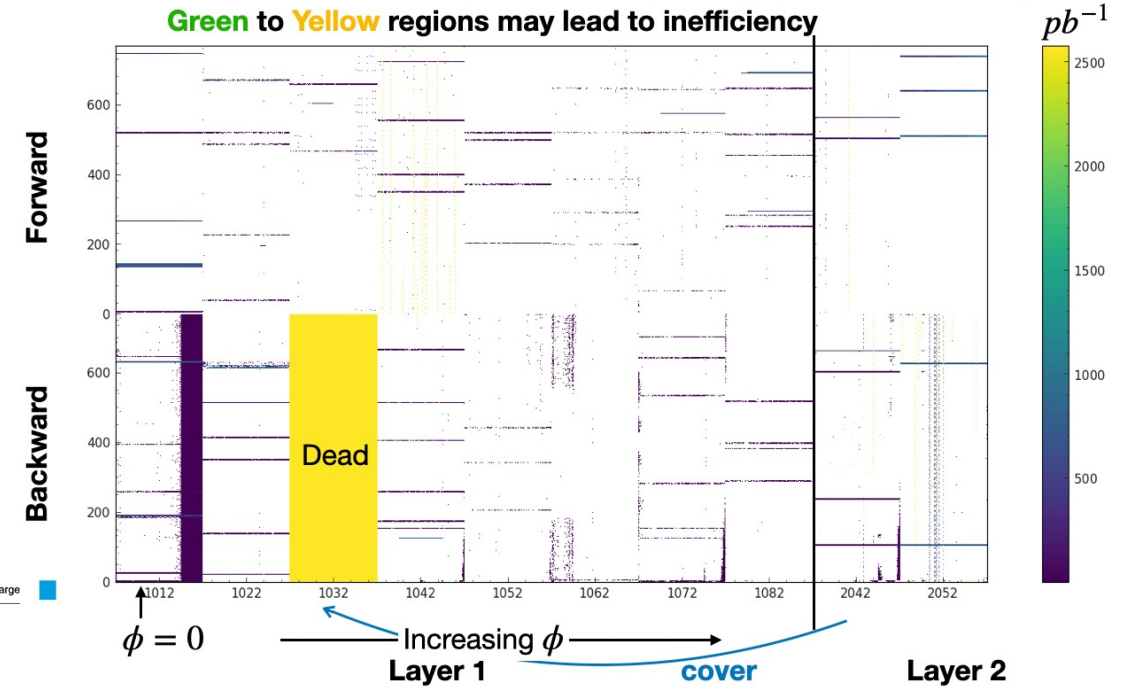
# My Current Work

## Activities and challenges

- Performance study of the incomplete Pixel detector (running at Belle II)
  - Indirect SR photon background
  - Offline Calibration:
    - Hot/dead pixel masking
    - Gain calibration (8-bit ADC output)
- Assembly and commissioning of the complete one for 2022



### Accumulated masked pixels in exp 12 (physics runs 797-2274)



# My Favourite Plot (history)

## One map in the warring states period of ancient China

- A little history of the periods (770 – 221 BCE):
  - The Spring and Autumn period
  - The warring states period
- it was the **worst of times**
  - Wars among thousands of states
  - Mainly among 7 biggest states in the warring states period
- It was the **best of times**
  - Blossom of Chinese philosophies including the most influential one, **Confucianism**
  - *The Art of War*, was written by the ancient Chinese military strategist, Sunzi.

Main idea: The best strategy is to win without a war.

-> "Violence is the last refuge of the incompetent", by *Isaac Asimov*



[https://en.wikipedia.org/wiki/Spring\\_and\\_Autumn\\_period](https://en.wikipedia.org/wiki/Spring_and_Autumn_period)  
[https://en.wikipedia.org/wiki/Warring\\_States\\_period](https://en.wikipedia.org/wiki/Warring_States_period)