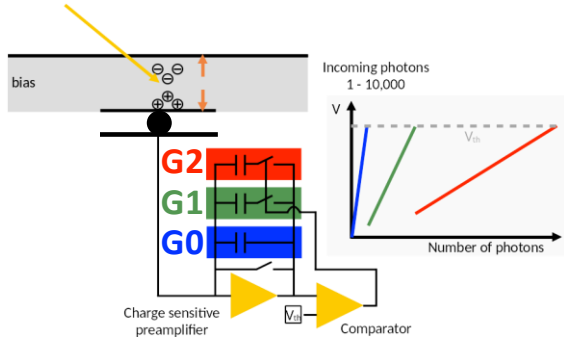
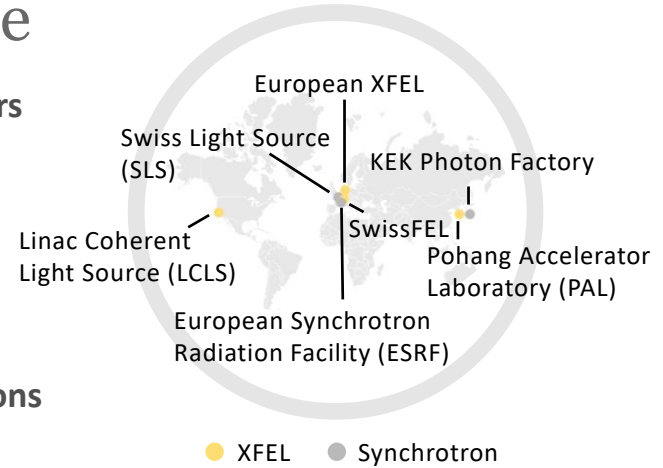


# JUNGFRAU – A hybrid pixel detector for high-performance photon science

- JUNGFRAU has found widespread use at x-ray free-electron lasers (XFELs) and synchrotron sources worldwide



- It combines a **charge-integrating** architecture and three **dynamically switching**, linear gains per pixel
  - Dynamic range from 1 –  $10^5$  photons between 1.2 keV – 12 keV
  - Electronic noise always below **Poisson limit**

- Its success inspires ongoing research to **extend the sensitive energy range** to the low and high ends of the x-ray spectrum
  - 250 eV – 2 keV: **inverse LGAD sensors (iLGAD)**
  - 12 keV – 150 keV: **high-Z materials**

First LGAD results

