SLHC Pixel Opto-Link R&D Status

- R&D program is currently being pursued by collaboration of Ohio State/Oklahoma/Oklahome State
  - hope that Siegen/Wuppertal will join later…
- investigate feasibility of upgrade based on current pixel link architecture to take advantage of LHC R&D effort and production experience

R&D Issues/Results for SLHC

- bandwidth of ~ 640 Mb/s is needed
  - can micro twisted pair transmit at this speed?
    - preliminary result:
      - can adequately transmit data at 640 Mb/s
      - transmission at 1.3 Gb/s may be acceptable
  - can fusion spliced SIMM/GRIN fiber transmit at this speed?
    - preliminary result:
      - can adequately transmit data up to at least 2 Gb/s
- can PIN/VCSEL arrays survive SLHC radiation dosage?
  - preliminary results: both type of arrays can survive

⇨ bandwidth of current pixel link infrastructure is adequate for SLHC

What is next?

- complete the bandwidth study
- continue irradiation of VCSEL/PIN arrays from various vendors
- convert DORIC/VDC from 0.25 to 0.13 μm process