

## HCAL-J

- Physics Design Optimization
  - Original JINR COMPASS HCAL design modified to obtain faster timing resolution. New design uses alternative scintillator and wavelength shifter (WLS) materials. WLS moved to center of module.
  - Optimal PPO concentration (0.5%) determined via measurements of FNAL supplied extruded scintillator coupled to WLS material.
  - St. Gobain BC-484 and Eljen EJ-299-27 WLS material tested with FNAL scintillator. BC-484 selected as optimal WLS.
  - Single element castable light-guide geometry designed with optical photon package of GEANT4. High transmission geometry achieved.
- Prototype Construction and Detailed Design
  - Components tested and performance used to benchmark simulations
  - Detailed design (bolt placement, etc.) being finalized
  - Structural prototype (can, ribs, endplates...) being assembled.  
(Encountered some problems with manufacturer meeting specs.)
- HCAL-J Construction
  - Scintillator production initiated (First shipment early 2014.)
  - P.O. for BC-484 placed by INFN (Bellini et. al.)
  - Light guide manufacturing to be initiated this fall.
  - Quotes for steel absorbers and modules must be updated prior to placing orders.
  - Construction scheduled determined by available funding.