

# Reviewer's comments to Hyper-K

1. Can you tell us about the funding model for Hyper-K ... **what requests will be made from what entities in Japan (on what time scale), what is the expected requests from foreign partners and how will foreign contributions be handled (i.e. IKC, cost book, etc.)?**
2. What plans/thinking is in place for the **project management of Hyper-K**, both in terms of the construction of the detector hardware and software and in terms of building the collaboration and getting it prepared for the science?

- **Period**
  - Construction of Hyper-K, ND, Beam upgrade: ~7 years (2020~2027)
  - Operation of Hyper-K: 20 years (2027-2046)
  - Operation of J-PARC: 10 years (2027-2036)
- **Components to be requested and institutes** (Oku-yen~1MUSD, numbers for last year's budget request)

item	UTokyo (ICRR)	Japan	Overseas
Cavern		263	<b>Foreign partners</b>
Tank (liner, structure)		127	
Photo-detection system		113	
Water & management		47	
<b>Total</b>		<b>549 Oku-yen</b>	
J-PARC upgrade	KEK	32	-
Near Detector Facility		10	-
Near Detector		-	30*
<b>Total</b>		<b>42 Oku-yen</b>	<b>30 Oku-yen</b>

\*Crude estimation to be revised by actual design and production by foreign partners

# International Contributions Towards the Construction and Operation

HK proto-collaboration, March 24, 2017

- International proto-collaboration from non-Japanese institutions will make their best efforts, by means of in-kind and capital contributions, as well as collaboration-supplied manpower, to provide following:

## CONSTRUCTION CONTRIBUTIONS

1. Half of the baseline Inner Detector (ID) photosensor system, including electronics and covers, with overall capabilities equivalent to 40% photocathode coverage with 50 cm photomultiplier tubes (PMTs) that have twice the photodetection efficiency of the PMTs used in Super-Kamiokande.
2. The complete baseline Outer Detector (OD) photon detection system, with overall capabilities equivalent to the OD system of Super-Kamiokande.
3. The magnetic coil system for cancelling the earth's magnetic field.
4. The data acquisition system for both the ID and OD photo-detection systems.
5. Calibration system for both the ID and OD photo-detection systems.

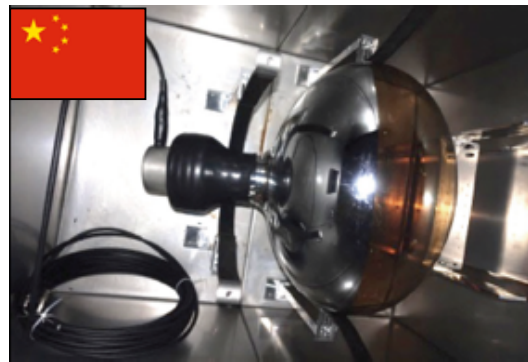
Contributions from non-Japanese-institutes may take the form of resources needed for the design, testing, installation, and commissioning of these systems. International contributions beyond the ones listed above will also be negotiated with the management.

# International sharing under discussion

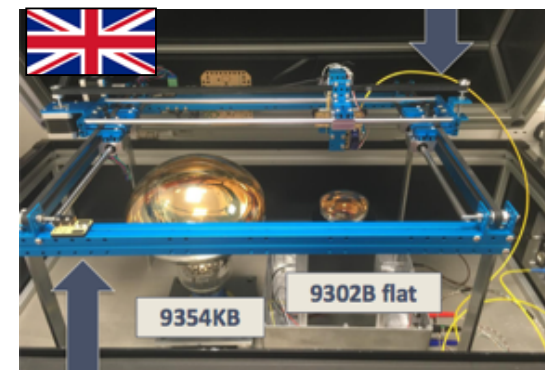
Multi-PMT module



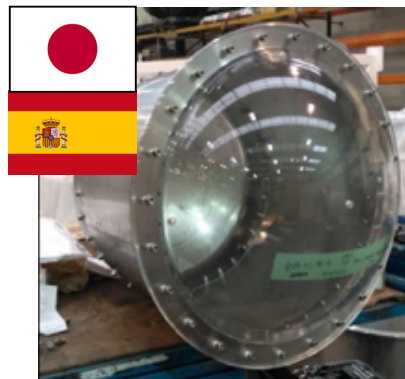
MCP-PMT



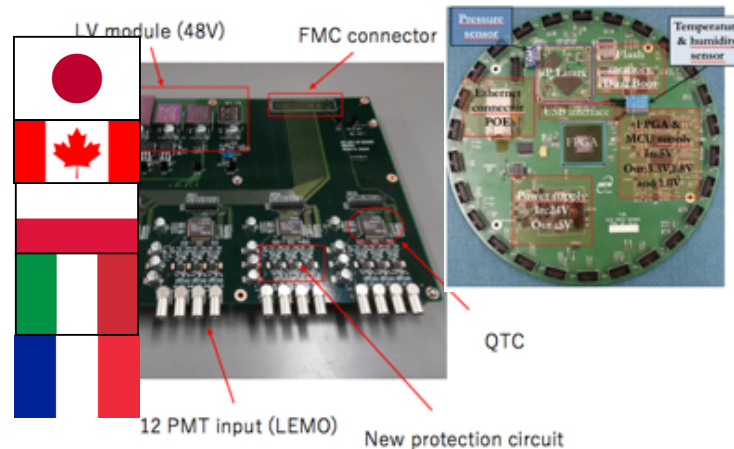
OuterDetector



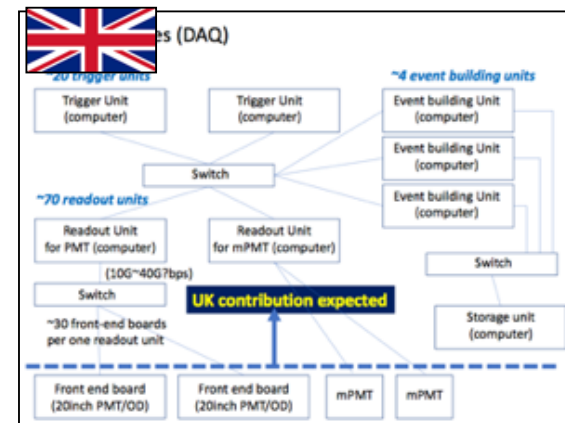
PMT cover



Electronics



DAQ



- Preparing “Expression of Interests” by each countries
- To be reviewed in the HK Advisory committee on June 25-26 and HK Financial Forum on June 27-28

# Construction organization under discussion

**Established**  
 \*To be assigned in Madrid  
 To be organized future

