

A1



# KEK's Discussion about RF Cluster

S. Fukuda  
KEK



**Slide 1**

---

**A1**

Administrator, 9/27/2007



## Members for the discussion

A. Yamamoto, K. Yokoya, H. Hayano, S. Fukuda, M. Michizono,  
M. Yoshida, T. Shidara

## Agenda

- (1) S. Michizono, *LLRF and RF Cluster*
- (2) M. Yoshida, *Circular WG Diameter*
- (3) Discussion

## Points

- (1) Technically difficult points.
- (2) Pro and Con



# Pro and Con of RF luster

## Pros

- (1) Cost impact due to single tunnel
- (2) More desirable configuration comparing with the klystron in the tunnel and long HV cables from surface.
- (3) Easy maintenance

## Cons

- (1) Ambiguity of LLRF control (Michizono)
- (2) Proof of feasibility is difficult due to the large scale test facility. (37 units? More smaller units?)
- (3) Reliability for long vacuum line
- (4) Possible case study for the failure of one klystron, or for quench of one cavity.



# Possible contribution from KEK

## Assumption

Test stand for the RF cluster is in the SLAC cite. Resonant line (or ring) is set in SLA. Modulator and MBK are available by using their properties.

## Contribution

- (1) Pipe information, Taking in part to procure pipe. In Japan, it is possible to use the expansion piping methods (Rather Cheap)
- (2) Joining to the design of power combiner, and power divider. If possible, contribution by in-house manufacturing.
- (3) joining to the test by sending KEK person to SLAC.

Final conclusion has not yet been obtained. It depends on the further discussion of RF cluster, LLRF control feasibility and future KEK's budget profile.