

# Aerogel Radiator Status

Ichiro Adachi

KEK

PID session

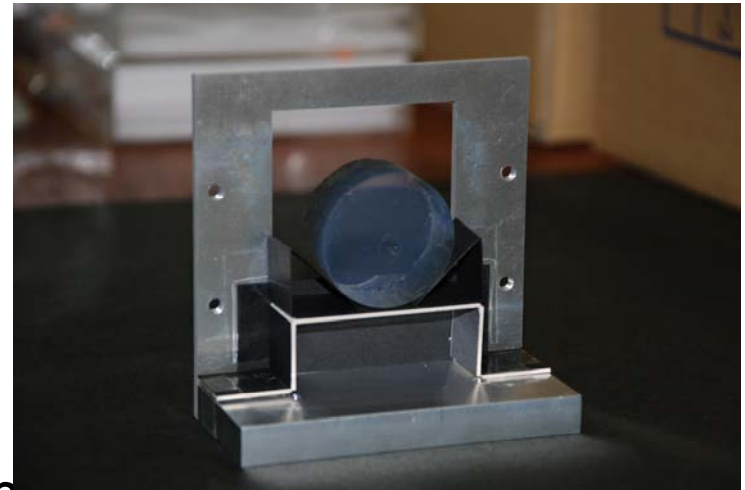
Open Meeting of the Super KEKB Collaboration

2008.12.11

1. Optical transparency improvement
2. New production method
3. Preliminary production plan

# Transparency Improvement(1)

- Good target
  - Novosibirsk aerogel
  - $n=1.055$ . TL= 62mm.
  - Thickness 18mm.
    - cf: KEK best one: TL~50mm



+34%  
Novo  
KMD  
+9%  
focus

Npe comparison to KMD ( $n=1.0455$ ),

Index difference ~20%

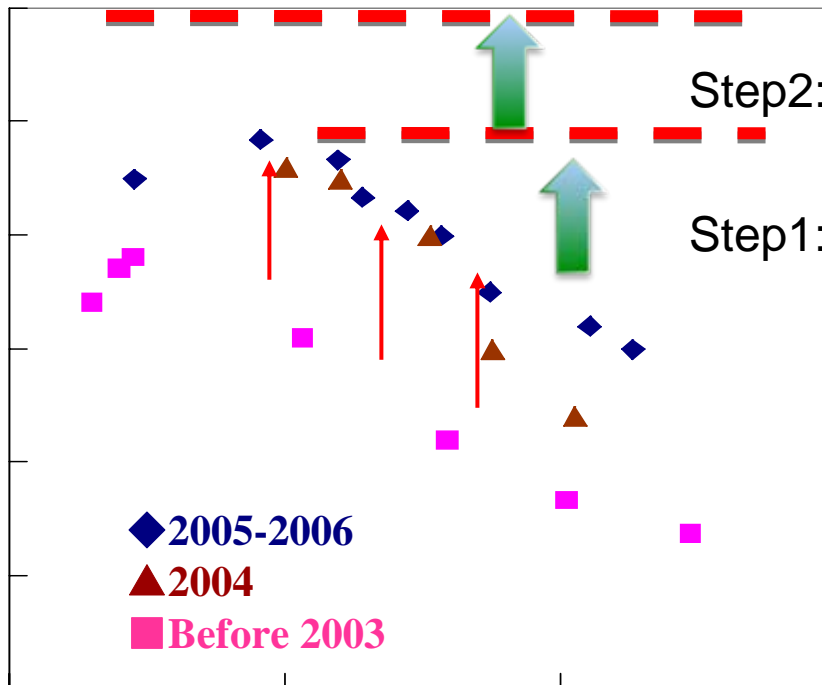
Transparency difference ~14%

Can we improve further ?

# Transparency Improvement(2)

- Further improvements ?

Transmission length at  $\lambda = 400\text{nm}$



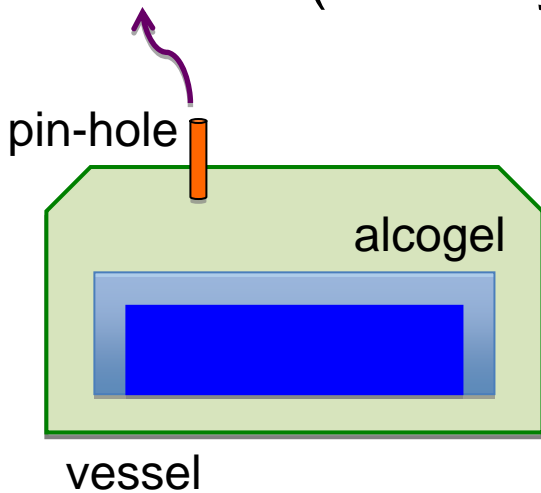
Step2: improve overall transmission level

Step1: improve in index range~1.06

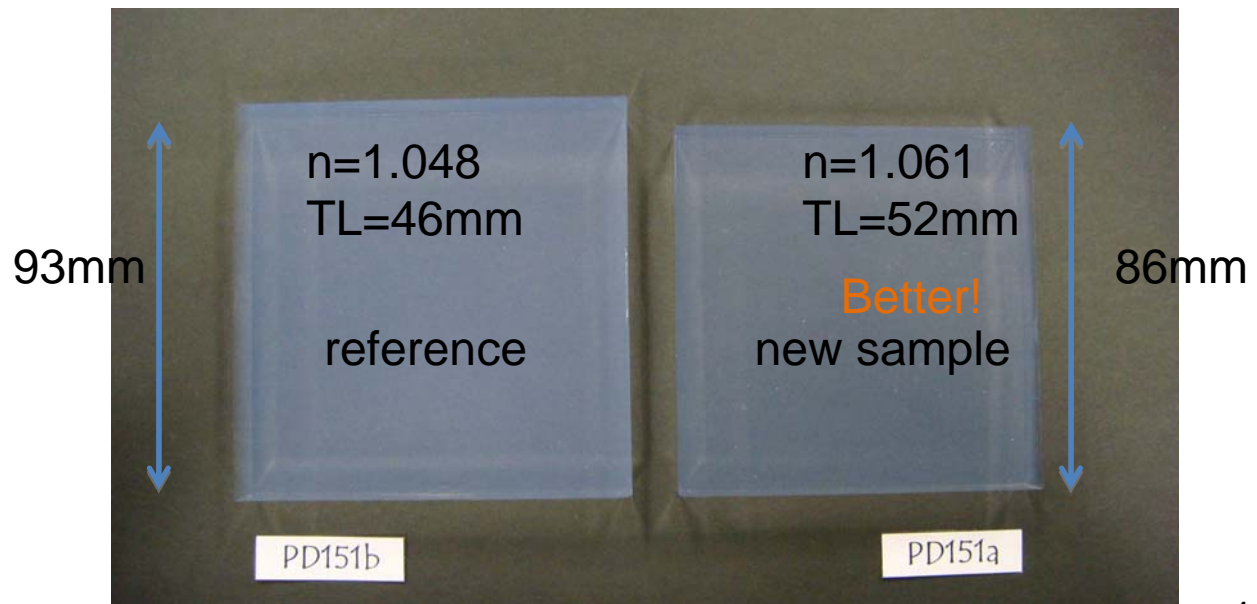
In focusing radiator scheme, this can have larger effect because higher index is used as downstream radiator

# New Production Method(1)

- Two ways going on at Chiba Univ. & KEK
  - “pin-hole” drying method
    - artificial shrink of alcogel volume to make index (~density) bigger with keeping good transparency



(Tabata san)



Good results from the 1<sup>st</sup> test production

# New Production Method(2)

- Introduce new solvent (precursor) instead of the present one of MS (methyl-silicate) 51
  - Candidates: MS53, MS56 and MS57
  - Really “new world”... No experience so far...
  - First synthesis using MS56 done last week
  - Need more time for optimization
  - First target: 3 month to get clear view

(Ishii san & Suzuki san)

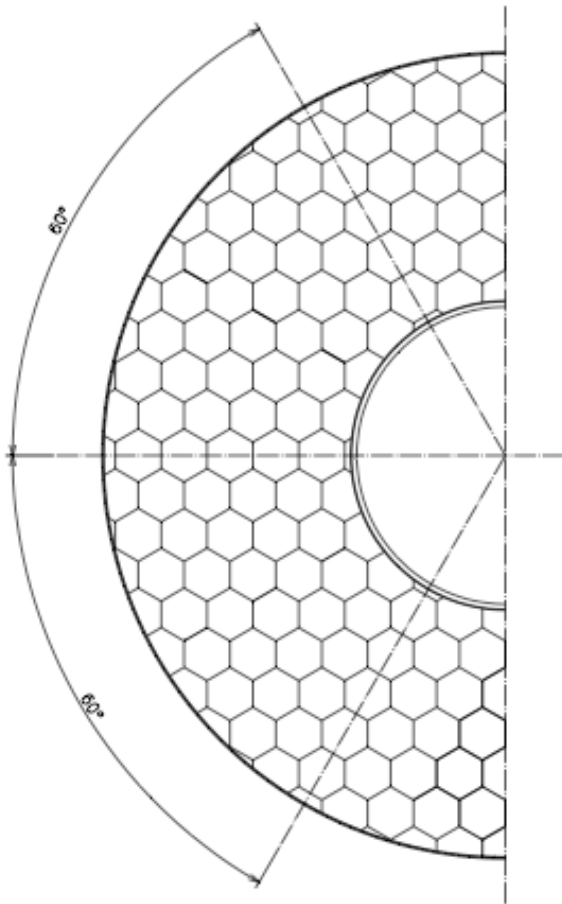
# Beam Test Plan

---

- We would like to carry out beam test in May 2009 at Fuji
  - New aerogel radiators will be ready
    - Assume KEKB will be in operation

# Production Plan

## “Guess”timation



Need ~300 tiles with 150mmx150mm size

Production time is limited by capacity of supercritical drying facility at Panasonic Electric Works Company

30mm thickness: 25 tiles/batch

20mm thickness: 35 tiles/batch

20mm thickness:  $300/35/0.75$ (crack-free) ~ 12 batches

1 batch takes 3.5 day