# Transmission calibration of the Dewar gate valve for XRISM Resolve

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# Talk plan

- 1. Introduction
- Measurement

   a. Stainless mesh
   b. Be filter
- 3. Summary

### 1. Intro: Hitomi/SXS result



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#### 1. Intro: Gate valve (GV)



Roles of GV 1. To keep Dewar vacuum on the ground 2. To protect from initial outgassing in the orbit

✓ All Hitomi/SXS data were taken through GV.
 ✓ All XRISM/Resolve initial data will be taken through GV

Need to calibrate GV transmission

#### 1. Intro: GV components



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2 Measurement a. Stainless mesh

#### Date: 2019 2/4-19 Place: X-ray Beamline, ISAS/JAXA



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#### Metal target (Ti, Cu, Pt, Mo, Ag)



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#### 2-a. Stainless mesh: Result



# 2 Measurement b. Be filter

#### Date: 2017 2/25-2/27 Place: KEK Photon Factory (synchrotron facility )

![](_page_12_Picture_2.jpeg)

2.5GeV

13/19

(KEK HP)

2019/5/20

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## 2-b. Be filter: Setup

![](_page_13_Picture_1.jpeg)

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### 2-b. Be filter: Setup

![](_page_14_Picture_1.jpeg)

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### 2-b. Be filter: Setup

![](_page_15_Picture_1.jpeg)

![](_page_15_Picture_2.jpeg)

Chamber

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#### 2-b. Be filter: Result

✓ Model assuming pure Be PE absorption

![](_page_16_Figure_2.jpeg)

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#### 2-b. Be filter: Model

✓ Model including minor PE abs. and BDFs  $T(E) = T_{P.E.}^{(Be)}(E) T_{P.E.}^{(minor)}(E) \prod_{i}^{6} BDF(E) \begin{bmatrix} Crystal \\ Atomic \end{bmatrix}$ 

![](_page_17_Figure_2.jpeg)

Considering BDFs is essential

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Measured transmission of two components of GV a. Stainless mesh Current CalDB has been something wrong We shall update CalDB of Hitomi/SXS

#### b. Be filter

We found considering BDFs is essential for microcalorimeter calibration

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### References

- Tsujimoto et al. (2018), PASJ
- Yoshida et al. (2017), Proc. of SPIE
- Hoshino et al. (2017), Proc. of SPIE
- Eckart et al. (2016), SXS Cal. Report Document

![](_page_19_Picture_7.jpeg)