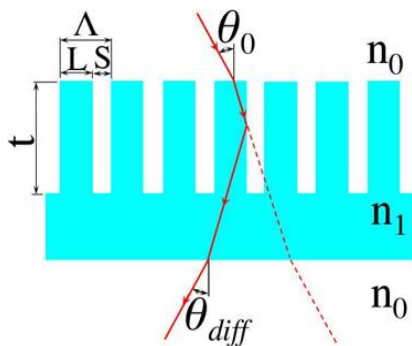
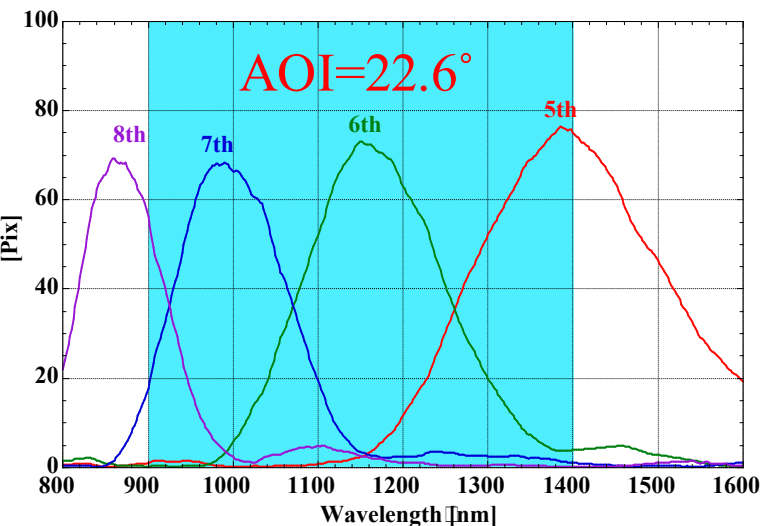
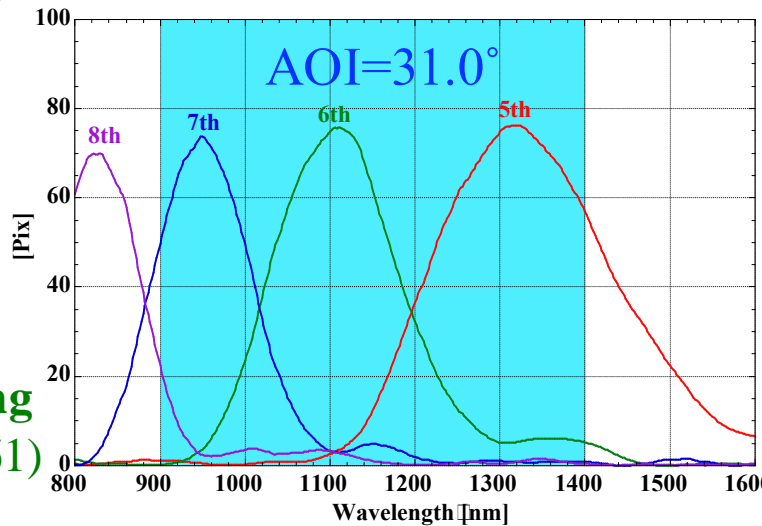


# 次世代観測装置用の新しい回折格子 VI

## SWIMS z, J バンド グリズム



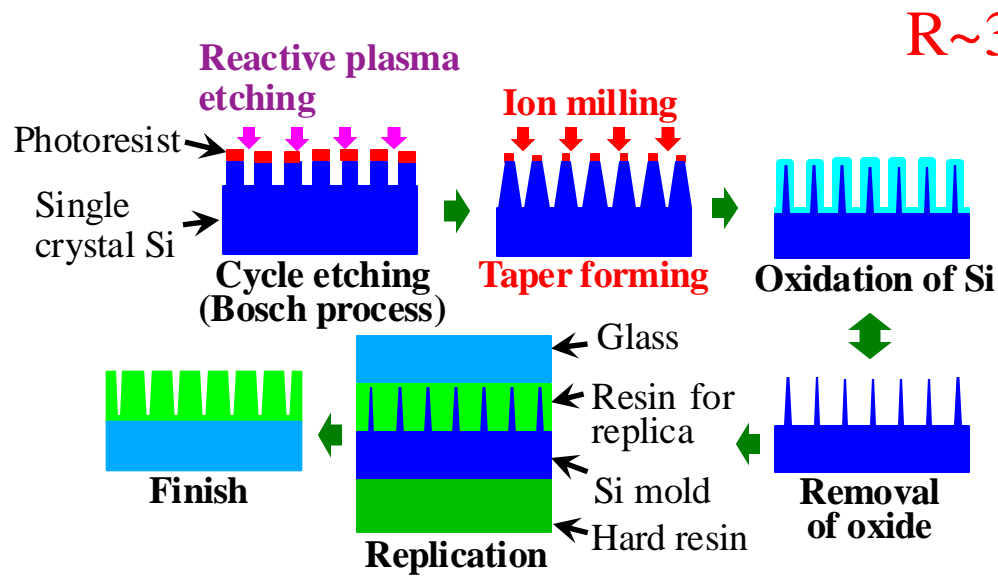
Volume binary (VB) grating  
 $n_1=1.551@1,150\text{ nm}$  (NOA61)



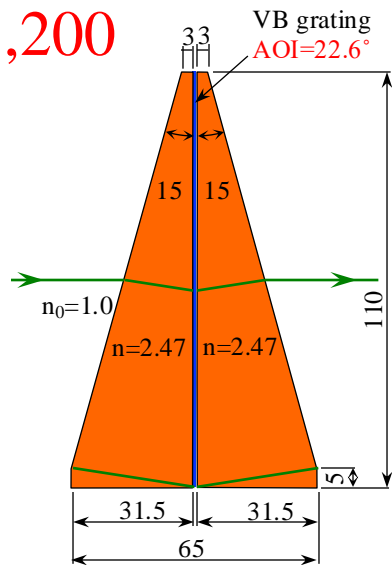
$\Lambda=6.4\mu\text{m}$  (156.3 lp/mm)

L&S=19:1,  $t=16\mu\text{m}$ , アスペクト比=1:50

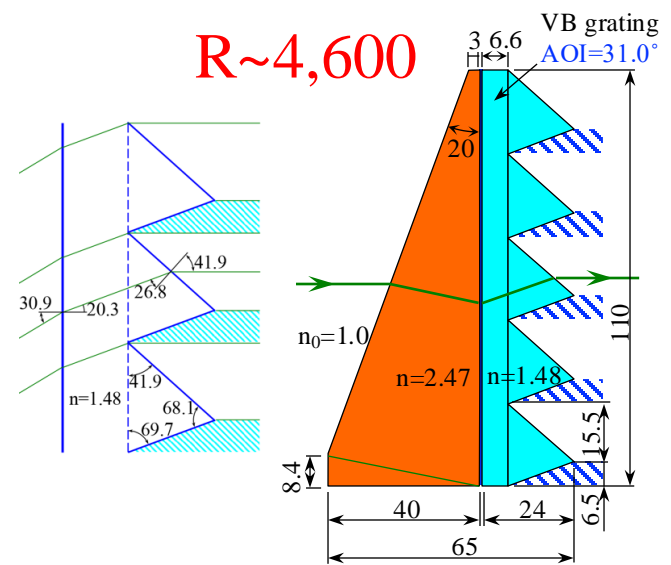
$\Lambda=9.0\mu\text{m}$  (111.1 lp/mm)  
 L&S=19:1,  $t=30\mu\text{m}$ , アスペクト比=1:66.7



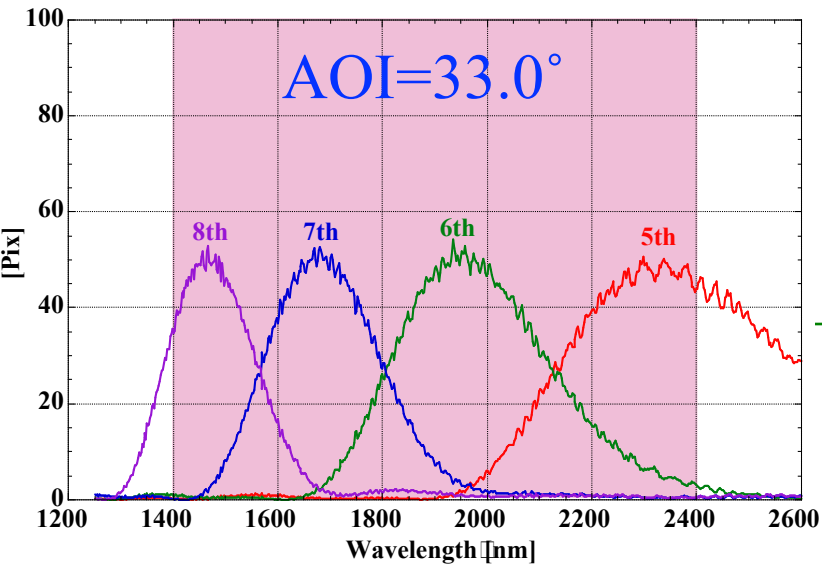
R~3,200



R~4,600

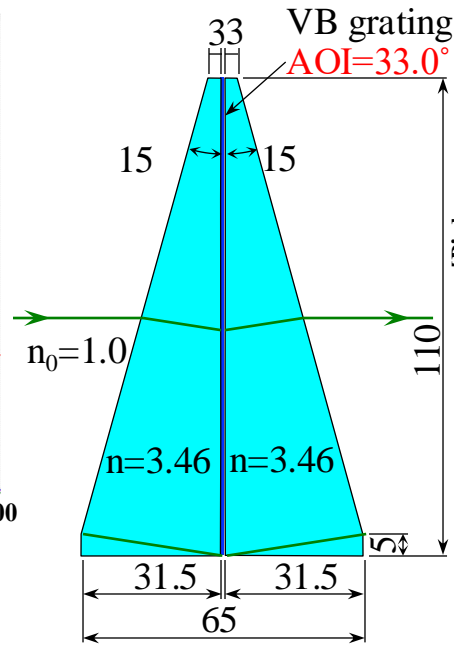


# SWIMS z, J バンド グリズム



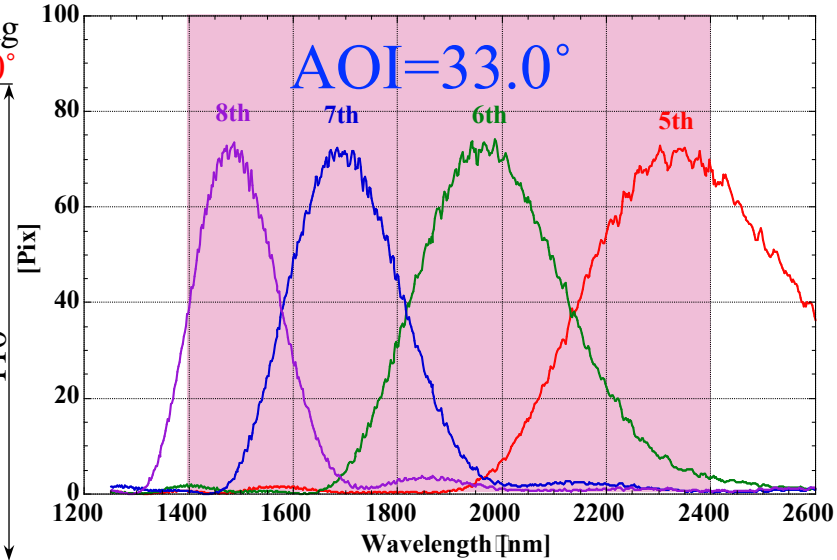
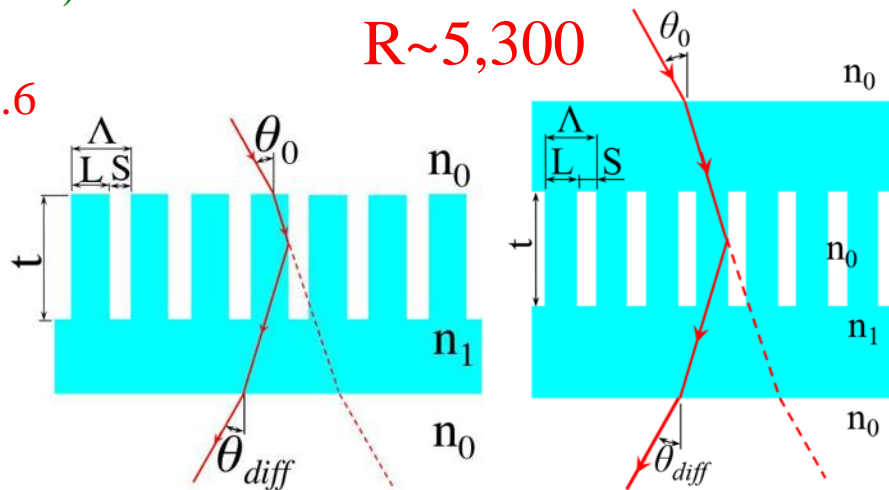
## シリコン開放型VB grating

$n_1=3.455@1.9\ \mu\text{m}$   
 $\Lambda=10.75\ \mu\text{m}$  (93.0 lp/mm)  
 $L\&S=19:1$ ,  $t=60\ \mu\text{m}$   
 アスペクト比=1:111.6



## シリコンVBグリズム

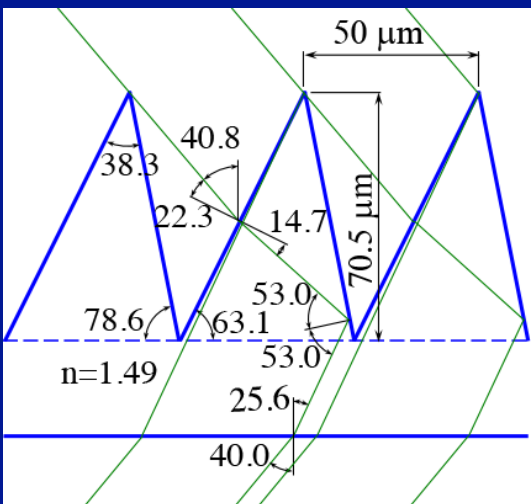
$R\sim 5,300$



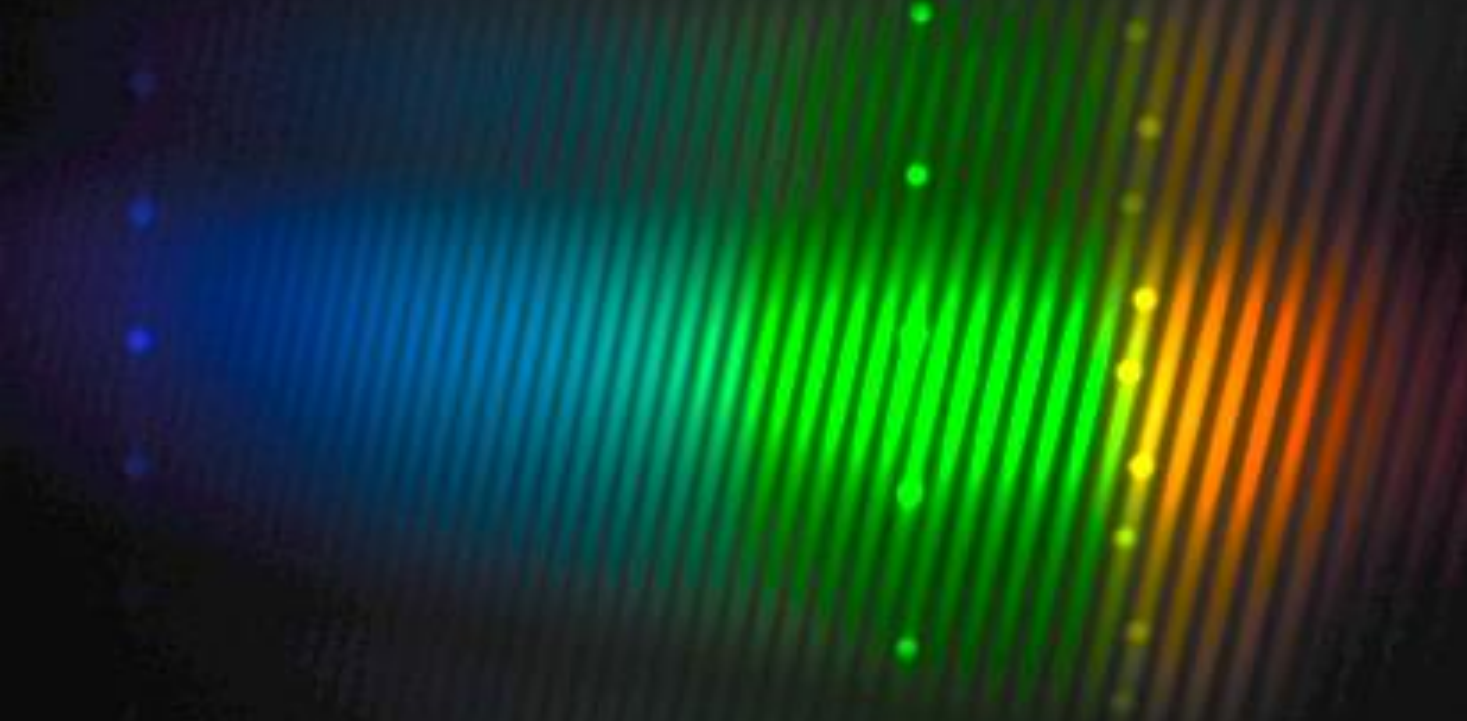
## シリコン密閉型VB grating

$n_1=3.455@1.9\ \mu\text{m}$   
 $\Lambda=10.75\ \mu\text{m}$  (93.0 lp/mm)  
 $L\&S=19:1$ ,  $t=58\ \mu\text{m}$   
 アスペクト比=1:107.9

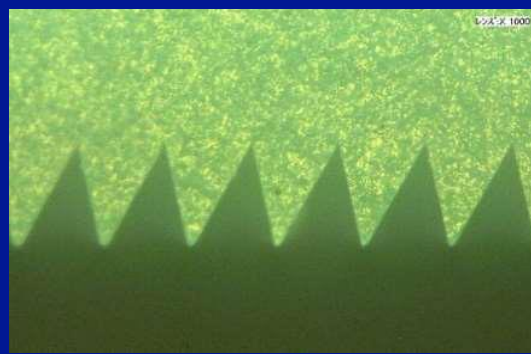
# Reflector Facet Transmission (RFT) Grating



エシェルグラム (白熱電球と水銀輝線ランプ)



RFT grating の仕様  
 ( $\gamma=38.3^\circ$ ,  $\Lambda=50\mu\text{m}$ ,  
 $\text{AOI}=40^\circ$ ).



格子 (レプリカ) の  
 顕微鏡写真。

| RCWA計算値<br>効 率 [%] | 測 定 値 (633nm) |         | 測 定 値 (1,100nm) |                    |
|--------------------|---------------|---------|-----------------|--------------------|
|                    | 次 数           | 効 率 [%] | 次 数             | 効 率 [%]            |
| 1.1                | 98            | 0.2     | 55              | —                  |
| 1.2                | 99            | 0.6     | 56              | 2.9                |
| 0.9                | 100           | 10.0    | 57              | 1.4                |
| 84.4 } 88.0 } 90.6 | 101           | 59.1    | 58              | 66.5 } 73.7 } 79.2 |
| 2.7 } }            | 102           | 5.1     | 59              | 5.8                |
| 1.4                | 103           | 5.7     | 60              | 2.6                |
| 0.6                | 104           | 2.9     | 61              | 1.5                |