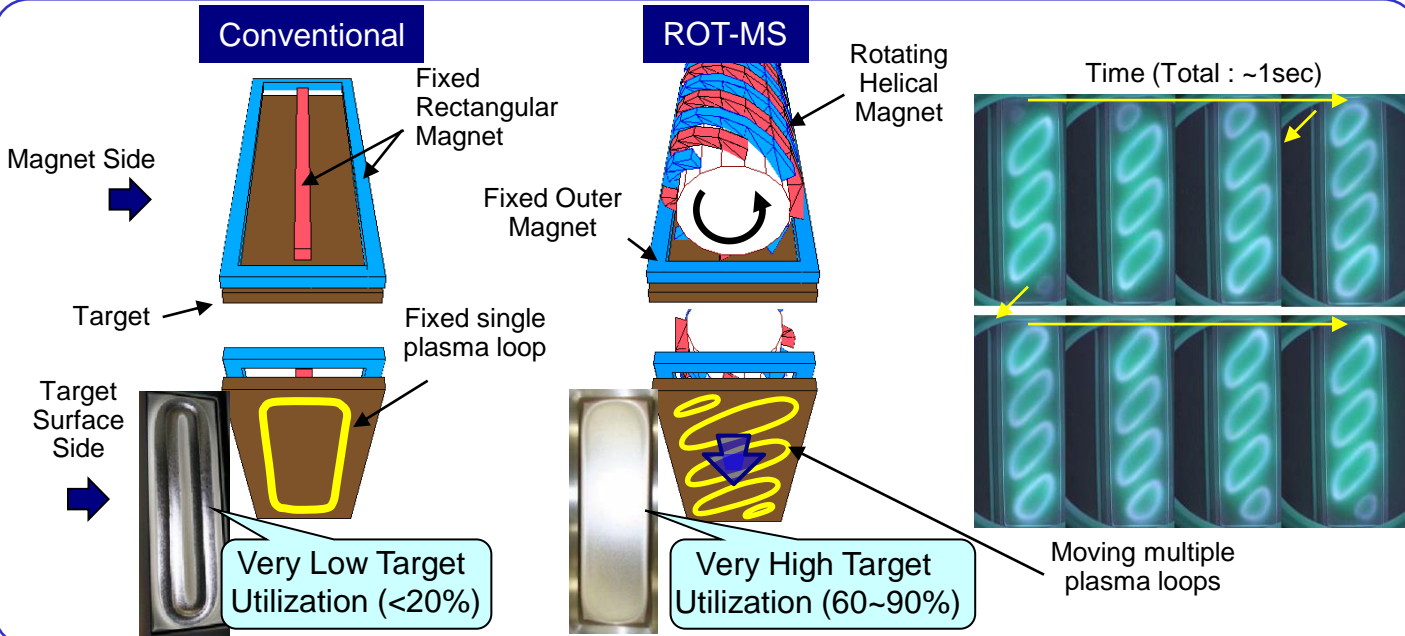


# ダメージフリー回転マグネットスパッタ装置 Damage-Free Rotation Magnet Sputtering



## Charge-up Damage Evaluation

Antenna Ratio

$10^6$	$10^5$	$10^4$	$10^3$	$10^2$	10
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Conventional

ROT-MS

Top View

Antenna ratio = 1M, 100k, 10k, 1k, 100, 10

Side View

$T_{ox} = 3.5\text{nm}$

Failure :  $J_g (\text{A}/\mu\text{m}^2) @ -5\text{V}$   
 $> 1 \times 10^{-9} \text{A}/\mu\text{m}^2$

$T_{ox} : 3.5\text{nm}$

Failure

Log scale

4 -  $4.0 \times 10^4$

5 -  $4.0 \times 10^5$

6 -  $4.0 \times 10^6$

7 -  $4.0 \times 10^7$

8 -  $4.0 \times 10^8$

9 -  $4.0 \times 10^9$

10 -  $4.0 \times 10^{10}$

11 -  $4.0 \times 10^{11}$

12 -  $4.0 \times 10^{12}$

Conventional : Yield 20% for A.R. of  $10^6$ ROT-MS : Yield 100% for A.R. of  $10^6$ 

## LaB<sub>6</sub> Sputtering Target

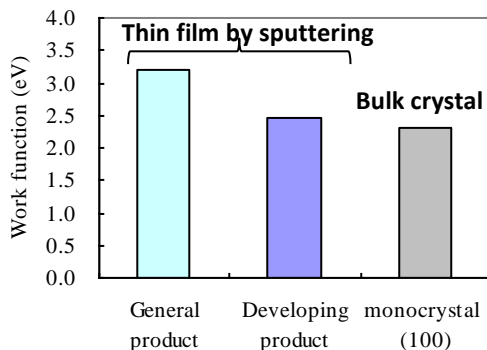
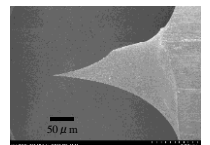
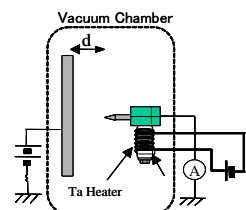
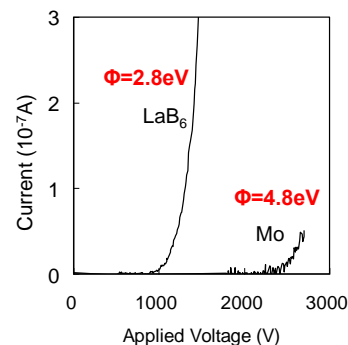


Fig. Work function of Lanthanum boride sputtering film.

Possible to form high crystallinity and low work function Lanthanum boride film at room temperature.

High density, and little quantity of particle outbreak.

## LaB<sub>6</sub> Thin Film



Applicability to electron injection layer of OLED, Thermionic electron emission electrode.