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(71) 가가
가 4 1 8

(72) 22 2 2 1 가 7-

22

2 2 1

가

7-

23

2 2 1

가

8-

(74)

:

(54)

1 (depolarization) , (110)- , (111)-

1

, YAG .

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(thermal birefringence) 가 , (depolarization)(
 $D_{pol} = P_{\perp} / P_{initial}$)
 가 2
 ([1]).
 YAG , 90° 1/4 ([2]-[4]).
 (111)- YAG , (111)- (111) , YAG 가 (111)
 , (111)- YAG , YAG
 , YAG (111)-
 가
 가

[1] (111)-

[2] [1] (100)-

[3] [1] (110)-

1

2

3 [5] [6] (111)-, (100)-, (110)-

4 (111)-, (100)-, (110)- Θ Φ

5 $\Omega r^2 / r_0^2$ Φ

6 $r_a = r_0$, (111)-, (100)-, (110)-

7 6

8 (111)-, (100)-, (110)-

9 $r_a = r_0 / 4$, (111)-, (100)-, (110)-

1 (100)- YAG

YAG (111)- 가

(111)-

1

θ_p (°)

D_{pol}

2

P_{ab} (W)

D_{pol}

(Koechner)

(Rice)

(111)-

(2)

가 , , (111)- 가

(100)- 45° (2). , (111)-

, 2
, (110)- YAG

$$D_{\text{pol}} = \frac{1}{\pi r_0^2} \int_0^{\alpha_0} \int_0^{2\pi} D r d\Phi dr \dots (1)$$

(z-) , (r, Φ)

$$D = \sin^2[2(\theta - \gamma)] \sin^2(\psi/2) \dots (2)$$

, θ x (xy- ψ) , γ x-
 Δn

$$\psi = (2\pi/\lambda) \Delta n L; \Delta n = \Omega S (r^2/r_0^2);$$

$$S = [\alpha_1 / (1 - \nu)] (\eta_h P_{ab} / 16\pi \kappa L) \dots (3)$$

, λ , α_1 , ν (Poisson)
 η_h , r_0 , P_{ab} , κ
, L

가 Nd:YAG ([5] [6]) , 3
, 2 가 가 , $\theta = \Phi$, (111)-
, (111)- , (100)- , (110)- θ Φ 가,

$$\tan 2\theta = \tan(2\Phi) \dots (4a)$$

$$\tan 2\theta = [2p_{44} / (p_{11} - p_{12})] \tan(2\Phi) \dots (4b)$$

$$\tan 2\theta = [8p_{44} \tan(2\Phi)] / \{ 3(p_{11} - p_{12}) + 2p_{44} - (p_{11} - p_{12} - 2p_{44}) [2 - (r_0^2/r^2)] [1/\cos(2\Phi)] \} \dots 4(c)$$

(100) - , (110) - [5] [6] , ,
 (110) - , (111) - 1 ,
 , $Y_3Al_5O_{12}$, (111)
 $1/10$. (110) - , (111) -
 , YAG , YAG ,

- (A) (111) -
- (B) (100) - (110) -
- (C) (110) - , (111) - 1

가

(110) -

(57)

1.

(111) -

2.

1

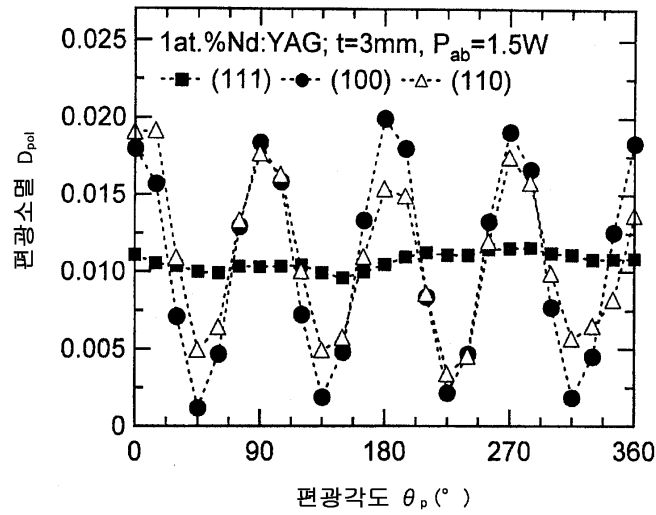
(100) -

3.

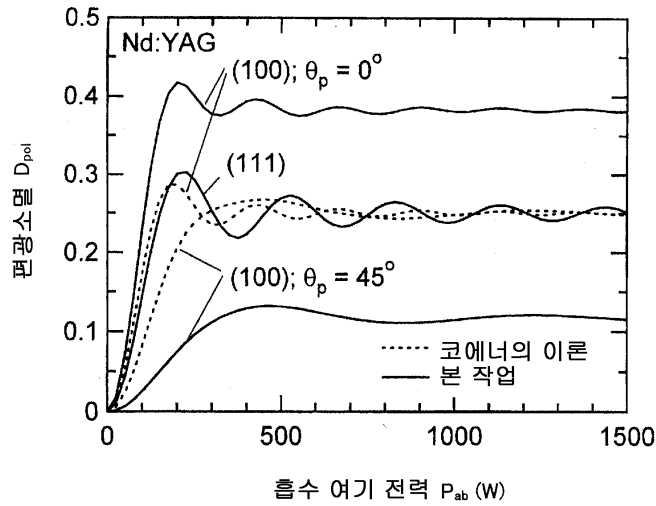
1

(110) -

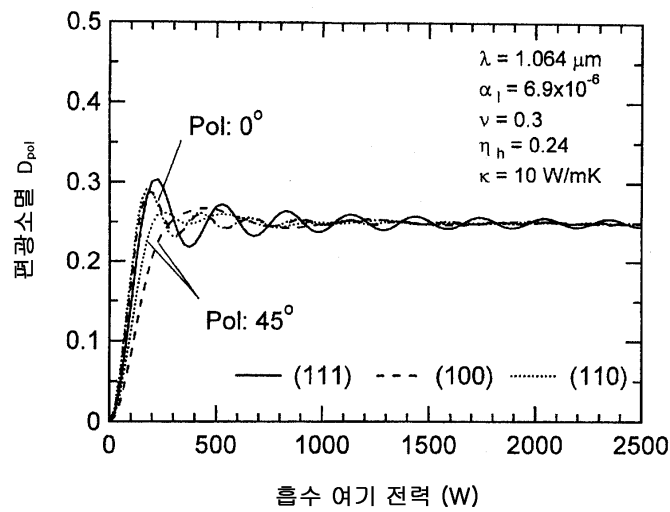
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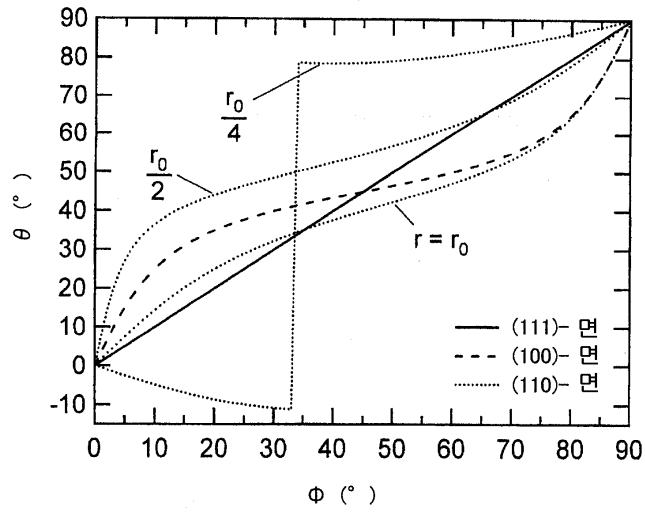
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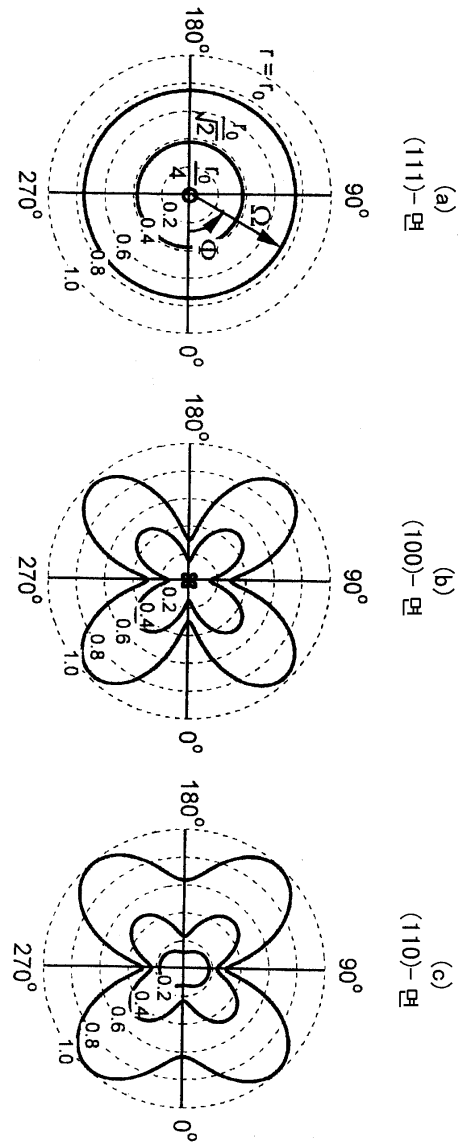
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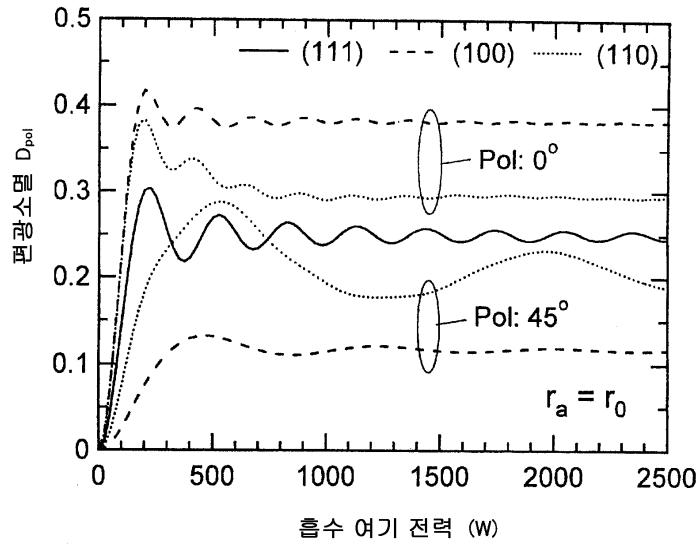
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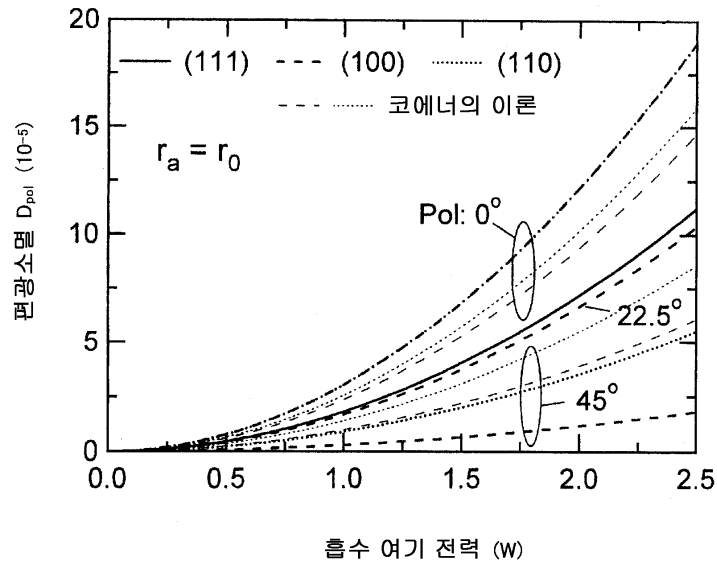
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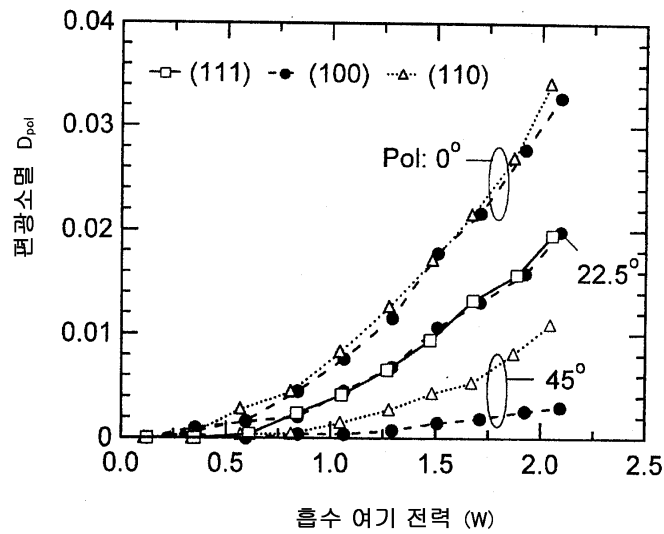
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8



9

