

Measurement of Refractive Index of Solid Material by Critical Angle Method

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1.

가

[1] air gap

gap ()
 gap
 microsphere
 , gap
 가
 matching fluid gap

가

gap

가

가

polystyrene

index

가

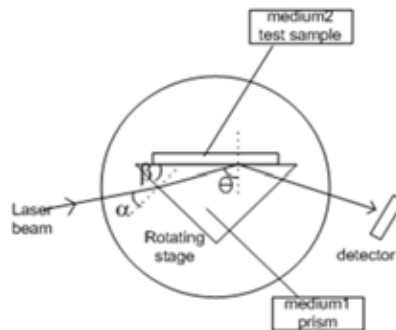
2. Gap

543.5 nm

1.977

gadolinium gallium garnet (GGG)

1



1

543.5 nm

He - Ne laser

rotation stage

0.003

. Gap

()

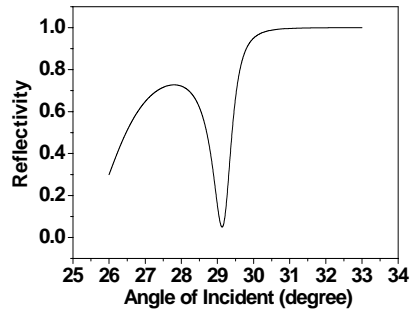
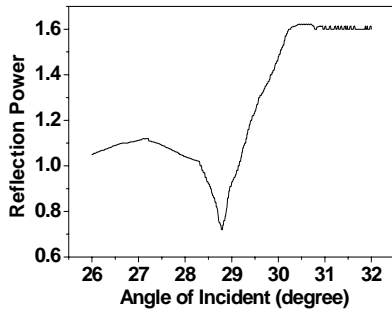
1 μm polystyrene

microsphere

가 2

1 μm

air gap



2

3. Index matching fluid

Gap

Index matching fluid(: 1.50)

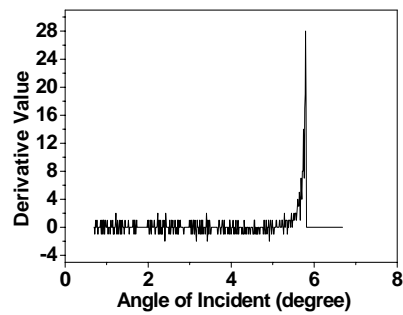
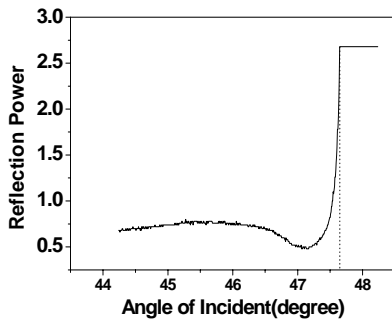
3

gap

gap

1.4604±0.0002

10⁻³



data

data 1

3

gap

Index matching fluid

가

[1] Q. W. Song, C-Y. Ku, C. Zhang, R. B. Gross, R. R. Birge and R. Michalak, " Modified critical angle method for measuring the refractive index of bio-optical materials and its application to bacteriorhodopsin ", J. Opt. Soc. Am. B, 12 797 (1995).