

One-Step Preparation of Broadband NIR Antireflection Coating by Breath Figure

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Broadband antireflection film at near Infra-red (NIR) was prepared by spin coating of cellulose Acetate Butyrate (CAB) solution in tetrahydrofuran (THF) under humid environment. Condensed water droplets were successfully embedded in CAB solution in THF from breath figure formation, and become porous structure after complete drying. The film acts as single or multi-layer of antireflection film depending on solution concentration. For instance, the films prepared by solution concentration of 0.04 ~ 0.06 g/cc exhibited two distinct layers: top layer and bottom layers having higher and lower porosities, respectively. These two layers showed broadband AR effect at NIR region from 800nm to 2200nm. The reflectance of the film was less than 1%.