

유기 분자 자기조립체를 이용한 표면 개질과
젖음성에 관한 연구

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Wettability is an important surface property that is crucial in many practical applications. In this study, we synthesized N1',N6'-bis(3-(1-pyrrolyl)propanoyl) hexane dihydrazide (hereafter DPH) that self-assembles through intermolecular forces of hydrogen bond and π - π stacking. This DPH molecule was self-assembled to adjust the surface wettability on a wafer. To induce DPH self-assembly, the seed layer was prepared by dropping and drying of 1,1,1,3,3,3-hexafluoro-2-propanol solution containing DPH on silicon wafer. After the seed layer formation, DPH solution in methylene chloride was evaporated at 40°C during 24h to grow self-assembled microrods on the seed layer. After modification, the surface had a static contact angle of $\sim 115^\circ$ indicating the hydrophobic surface. Treatment of the hydrophobic surface using iron chloride and ammonium persulfate solution changed the surface to be hydrophilic. The water contact angle reduced to $\sim 45^\circ$ after treatment. These results are applicable to the self-cleaning surface, printing, coating and so on.