

Alignment of SSY using 1 dimensional nano pattern via SSL method

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Lyotropic chromonic liquid crystal (LCLCs) phases are formed by a range of compounds, including drugs, dyes and nucleic acids, which we can observe easily in nature. LCLCs have attracted a lot of attention for practical applications as dichroic light-polarizing sheet materials, bio-sensing active chemicals, and etc. Despite of these advantages, controlling over the alignment of domains in LCLCs has many limitations compared to thermotropic LCs which have been researched by many scientists. We used a novel method to make line patterns and fabricate the LC cell. To achieve uniform alignment, we used nano-patterned gold substrates which have high aspect ratio (ca. 10) and high resolution (ca. 20 nm) made by secondary sputtering phenomenon. We confirmed the uniform planar alignment of LCLCs over large area(5mm x 5mm) observed by polarized optical microscope. In addition, we employed various kinds of LCLCs such as disodium cromoglycate(DSCG), benzopurpurin 4B(BPP 4B)and sunset yellow(SSY) to prove the generality of our method.