

# Liquid crystal light shutters for smart window and display applications

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Light shutters can be used to hide the objects or to control the transmittance for smart window and display applications. Operation of light shutters relies on either light scattering or light absorption. Switching between the transparent and the translucent scattering states in cholesteric liquid crystals, polymer-dispersed liquid crystals, and polymer-networked liquid crystals can be used for privacy by hiding the objects behind a light shutter. Switching between the transparent and opaque absorption states in dye-doped liquid crystals, electrochromic devices, and suspended-particle devices can be used for dimming windows through control of the transmittance. As shown in Fig. 1, both light scattering and absorption by dye-doped liquid crystals can be used simultaneously to hide the objects behind a display panel and to provide black color at the same time for high visibility of a see-through display [1–5]. In this talk, various types of technologies on liquid crystal light shutters for smart window and display applications will be reviewed.

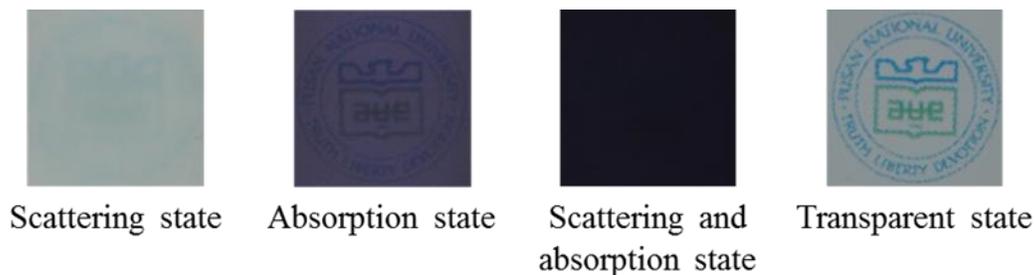


Fig. 1. Liquid crystal light shutter placed on a printed paper in the scattering, absorption, scattering & absorption, and transparent states.

## References

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## Speaker Biography

[Tae-Hoon Yoon](#) received B.S. degree in Electronic Engineering from Seoul National University in 1979, and M.S. and Ph.D. degrees in Electrical Engineering from Korea Advanced Institute of Science and Technology in 1982 and 1986, respectively. Since 1986, he has been with the Department of Electronics Engineering, Pusan National University, Busan, Korea, where he is currently a Professor. From 2001 to 2003, he served full-time as the Program Director for Information & Electronics Program at Korea Institute of S & T Evaluation and Planning. Prof. Yoon chaired the Program Committee of IMID (International Meeting on Information Display) 2010. He also chaired the Executive Committee of IMID 2011. In 2012, he served as the President of Optical Society of Korea. He also served as the Organizing Committee Chair of ACLC 2015. Since 2014, he has been serving as the Editor-in-Chief of *Journal of Information Display*. He was awarded as the Best Researcher of the Pusan National University in 2012.