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Angle-insensitive multicolor display device based on phase change materials

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Reflective type display device based on phase change materials is attractive because of the ultrafast response time and high resolution compared to conventional display device. We demonstrate a unique device in that tunable three colors can be obtained on a single device by the sequential crystallization of double phase change materials. Without the need for RGB (red, green and blue) color filter or spatially modulated color scheme, the color can be clearly and continuously modulated optically. The optical contrast is optimized by calculation. The device has a low sensitivity to the angle of incidence and requires ultrathin phase change materials for visible light. The structure has the potential for a variety of applications, such us wearable devices, ultrafast solid-state displays and implantable displays in human bodies.

Biography

Hongkai Ji has his expertise in phase change memory and phase change materials-based displays. He has constructed a model to evaluate the color performance and improved the color depth modulation capability of phase change materials–based displays. In phase change memory field, he has employed the Hydrogen Silsesquioxane (HSQ) electron resist as insulating material to reduce the preparation process.

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