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A Calibration Method for Temperature Distribution Measurement of Thermochromic Liquid Crystal Based on Mathematical Morphology of Hue Image

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Abstract : The aim of this research is to design calibration method of Thermochromic Liquid Crystal for temperature distribution measurement based on mathematical morphology of hue image A glass of water is placed on the surface of sample TLC R25C5W at certain temperature. We use scanner for image acquisition. The true images in RGB format is converted to HSV (hue, saturation, value) by taking of hue without saturation and value. Then the hue images is processed based on mathematical morphology using Matlab2013a software to get better images. There are differences on the final images after processing at each temperature variation based on visualization observation and the statistic value. The value of maximum and mean increase with rising temperature. It could be parameter to identify the temperature of the human body surface like hand or foot surface.

Keywords : thermochromic liquid crystal, TLC, mathematical morphology, hue image
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