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【158】 Visible light backscatter: The illumination-sensor system-dualism of lighting

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For a long time, the sole function of a luminaire was to illuminate its surrounding. Nowadays, with the rise of light-emitting diode (LED) based luminaires also functionalities beyond illumination become more and more of relevance. Recent attempts in this regard focus on communication, localization and, most recently, backscattered visible light sensing. Here we demonstrate and discuss system designs, which allow for tunable artificial light (dimming, color temperature variation) that performs communication and sensing tasks (like identification and speed detection of moving objects) in parallel, and outline the potentials of tailored intelligent optical surfaces to further advance visible light backscatter technologies.

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