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DROPLET MANIPULAYING TO ASSEMBLE INTEGRATED MULTI-ANALYSIS DEVICES

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Abstract. Inspired by human olfactory system, cross-reactive sensor array has emerged as a valid approach to multi-analyte recognition and has been widely used in food industry, environmental detection, biological screening, etc. A critical requirement for successful multi-analyte recognition is abundant sensing information acquisition. We investigated the correlative multi-states properties of a photochromic sensor, which is capable of a selective and cross-reactive sensor array for discriminated multi-analytes detection by just one sensing compound. We designed and fabricated multistopband PCs microchip which can selectively amplify the sensing fluorescence in different channels, and perform a high-efficient multi-analyte discriminant testing. We developed printable curves sensor performed sensitive and stable resistance response on deformations, which could run complicated facial expression recognition, and contribute the remarkable application on skin micromotion manipulation auxiliary apparatuses for paraplegics. We firstly proposed the dynamic analysis for multi-detection, adopted photonic crystal nanomaterials in multi-analyte detection, and fabricated high-performance wearable multi-analysis sensor. Our innovative works achieved facile and efficient complete multi-analyte recognition with single and simple material using.
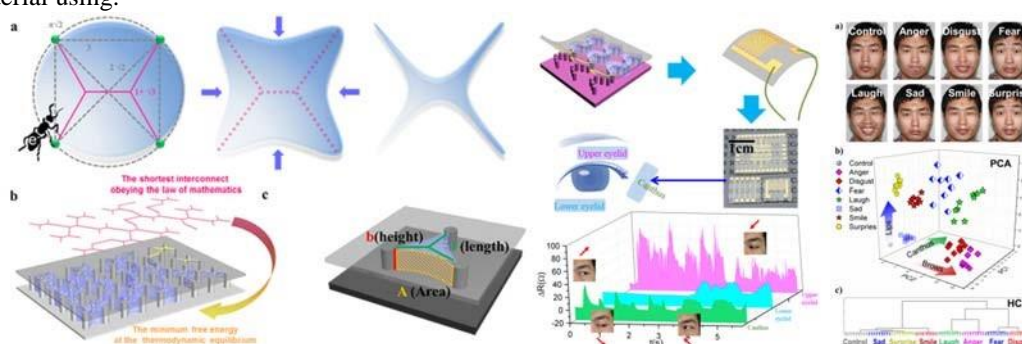
Figure 1. Inspired by the swarm intelligence optimal interconnect among fixed nodes via spontaneous droplet manipulation, for electronics discriminant analysis of 8 facial expression on nanoparticle curves-based strain sensors array and rational analysis.

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Short BIOGRAPHY

Fengyu Li, is a full professor of Jinan University. He got his Ph.D. degree from Institute of Chemistry, Chinese Academy of Sciences in 2008. Then he conducted research as a postdoctoral follow in Bowling Green State University, U.S. from 2008 to 2011. His research interests include photonic crystal materials, multi-analyte sensing, flexible electronics, printed assembly, 3D printing manufacture. He promoted the high-performance multi-analyte recognition with single and simple dye, and achieved the multi-resolution nano/micro flexible photonic/electronic devices integration. As the International Electrotechnical Commission (IEC) member, he proposes the first printed electronics international standard for China. As the penner and expert, he also draft the Chinese Printing Manufacture Technology Roadmap.