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Interactive Nanogel Marking at the Microscale for Security and Traceability Applications

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Abstract:

An original approach named Nanogel Marking is addressed herein to propose new alternatives to fight counterfeiting and forgery by improving the traceability of objects and documents and enabling secured authentication. This technique can be used to write or code information, logos, or patterns of a desired design at the microscale using poly(NIPAAm-co-AAc) nanogels as an envirointelligent biocompatible "ink." Nanogel marking features multiple functions, such as reversibility (write/erase properties), color changing capabilities, and recycling capabilities. Based on soft lithography methods, this nanogel marking technique also overcomes industrial limitations since it is fast, sustainable, and scalable on surfaces as large as a 4 in. wafer, enabling the fabrication of hundreds of thousands of nanogel markers in a few minutes.

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