

Luminescent supraparticles with adjustable ID functionality

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In the course of globalization, the security against counterfeiting with regard to financial and health aspects is a topic of increasing relevance. In a growing and open world market, it is becoming increasingly important to equip products with anti-counterfeit labels [1].

By assembly of luminescent lanthanide doped nanoparticles with characteristic optical properties, it is possible to generate defined superstructures (supraparticles) via spray-drying. By wise selection of building blocks, it is possible to tailor microparticles with distinct optical features, identifiable by their unique fingerprint.

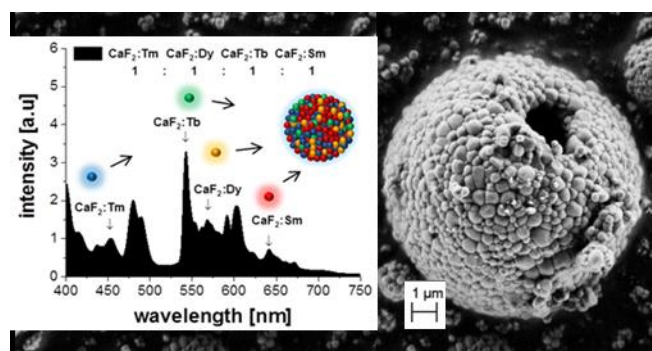


Figure 1. Supraparticles comprised of various types of luminescent nanoparticles with an individual and adjustable optical ID fingerprint.

The spectral code of the particle-based marker system relies on the relative emission intensities of luminescent nano sized building blocks and their concentration ratios within the micro-scale composite material. Due to this strategy we offer a modularity for the easily adjustable and simple creation of luminescent codes. These particulate systems offer themselves as tamper-proof material-based marker systems [2-4].

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