

Agregation-induced emission hyperbranch Polysiloxane with unique property

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Abstract

Hyperbranched polysiloxane (HBPSi), which is a new class of aggregation-induced emission luminogens (AIEgens) without aromatic structures, have drawn great attention because of good biocompatibility in recent years. In our previous work, we have developed various HBPSi containing double bonds, hydroxyl groups, amine groups and epoxy groups, and found some relationship between their structure and luminescence performance. However, these AIEgens normally exhibit low luminescence quantum yield and monochromatic blue emission, as well as their emission mechanism is still an open question. Herein, we report a kind of novel AIEgens of HBPSi with carbonyl chromophore. It shows a very high luminescence quantum yield, or multicolor luminescence and stimuli-response behavior. More importantly, based on the results of DFT calculation, we proposed a new luminescence mechanism namely “multiring induced multicolor emission” (MIE). In addition, a simple data encryption method has been explored based on the AIEgen. This study provides a novel approach to design and synthesis AIEgens with multicolor luminescence.

Biography

Hongxia Yan has completed her PhD in 2006 from Northwestern Polytechnical University (NWPU), China. She is the professor of NWPU, China. She has over 200 publications that have been cited over 900 times, and her publication H-index is 16 and serving as a head of Chemical Engineering and Technology subject at NWPU.

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