Abstract: Typical chromophores usually suffer from weakening or quenching of light emission caused by aggregation. This notorious photophysical effect is practically harmful, as luminophores are commonly used for real-world applications in solid state or aqueous media, where chromophores tend to form aggregates. We have discovered a diametrically opposite phenomenon that chromophores are non-emissive when molecularly dissolved and induced to luminesce by aggregate formation.[1] We termed this unusual process as aggregation-induced emission (AIE) and identified the restriction of intramolecular motion (RIM) as the main cause for the AIE effect. Based on the RIM mechanism, we have developed a wide variety of AIE luminogens with broad emission range covering visible and near-IR region and high luminescence quantum yields. We have demonstrated the photophysical processes, working mechanism and explored their high-tech applications in such areas as optoelectronic devices, chemo/biosensing and biological imaging.[2]

Key Words: aggregation-induced emission, restriction of intramolecular motion

Reference:

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