

Optical absorption and light emission of banana-shaped liquid crystal

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With the ultraviolet-visible spectrometer and photospectrometer, we have investigated the optical absorption and light emission from the dilute tetrahydrofuran solutions of a classical banana-shaped liquid crystal 1,3-phenylene-bis [4-(4'-nonyloxy) phenyliminomethyl] benzoate. The optical properties of the banana-shaped liquid crystal are closely related to the electronic transitions in the banana-shaped compound. In the assistance of the electronic structures calculated with Hückel tight-binding method, the optical absorptions and light emissions can be interpreted for banana-shaped liquid crystal 1,3-phenylene-bis [4-(4'-nonyloxy) phenyliminomethyl] benzoate. Our results indicate that both the recorded optical absorption and light emission originate in the conjugated chromophores that are connected by the Schiff linkage in the two branched wings of the banana-shaped liquid crystal.

References

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