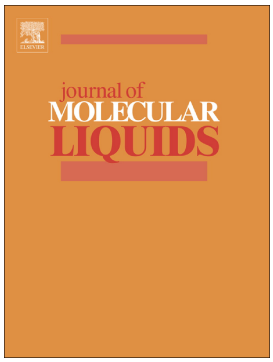

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Luminescent Mesogenic Borondifluoride Complexes with the Schiff bases Containing Salicylideneamines and β-Enaminoketones Core Systems†

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Abstract: Three new families of borondifluoride complexes **1a–c** derived from salicylideneamines **2a** and β-enaminoketonates **2b**–**c** were reported, and their mesomorphic and optical properties were also investigated. One single crystal and molecular structure of nonmesogenic BF_2 complex **1c** (n = 10) was resolved and the geometry of the central boron atom was tetrahedron. A larger dihedral angle of 81.3° between the two phenyl rings observed in crystal lattice was attributed to the lack of liquid crystallinity. Boron complexes **1a** formed monotropic SmA phases, while boron complexes **1b** exhibited enantiotropic SmC mesophases. The optical property of the boron complexes was dependent on their molecular structures, and they emitted a blue–to–green emission at λ_{max} = 476 –541 nm in the solution and 488–550 nm in the solid state. This is the first group of mesogenic BF_2 complexes with the Schiff bases derived from respective salicylideneamines and β-enaminoketones.

Keywords: smectic phases; borondifluoride; luminescent; salicylideneamines, β–enaminoketones