

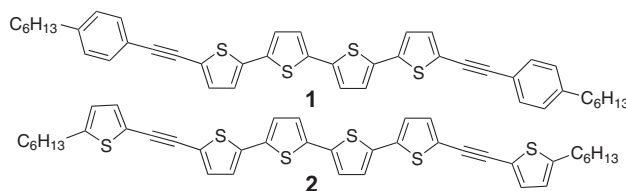
Solution-Processed Field Effect Transistors (FETs) made of Liquid Crystalline Oligothiophenes

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We report synthesis and simple solution-processed FET of new liquid crystalline (LC) quaterthiophenes **1** and **2** [1]. The present compounds **1** and **2** were prepared via two-step Sonogashira cross-coupling reactions. **1** and **2** are moderately soluble in common organic solvents. On differential scanning calorimetry (DSC) measurements, **1** and **2** showed LC



phase characteristics with two endothermic peaks of **1** and three endothermic peaks of **2**. The LC phases were investigated by polarized optical microscopy (POM). The FETs made by simple drop-casting at room temperature exhibit FET performance ($\mu = \sim 10^{-2} \text{ cm}^2/\text{Vs}$ and on/off ratio 10^4) comparable to dry-processed oligothiophene devices. We also demonstrate synthesis of related compounds and device fabrication by manipulation in or above LC phase temperature to improve the FET performance.

[1] M. Ashizawa, R. Kato, Y. Takanishi, H. Takezoe *Chemistry Letters* in press