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850Kに及ぶ高い熱安定性を有するジアニオン性ナフタレンジイミド誘導体を元にしたn型半導体

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High Thermally Stable n-type Semiconductor up to 850 K based on Dianionic Naphthalenediimide Derivative

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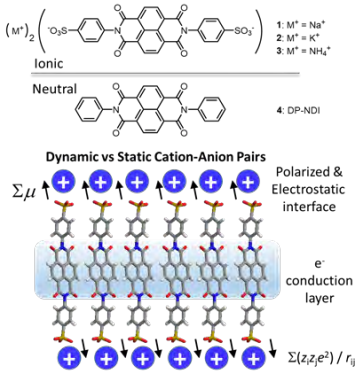


Figure 1. Molecular structure of dianionic $BSNDI^{2-}$ showing counter cations Na^+ (**1**), K^+ (**2**), and NH_4^+ (**3**) and neutral 4.

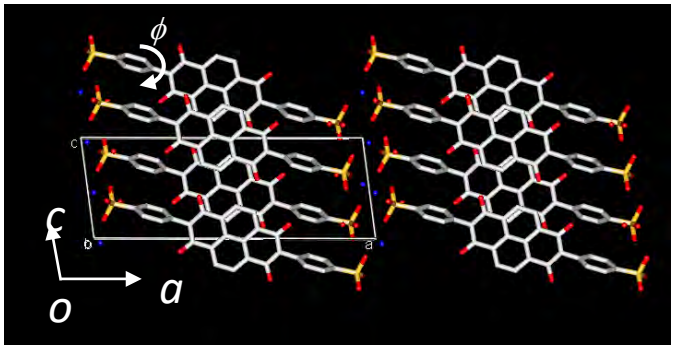
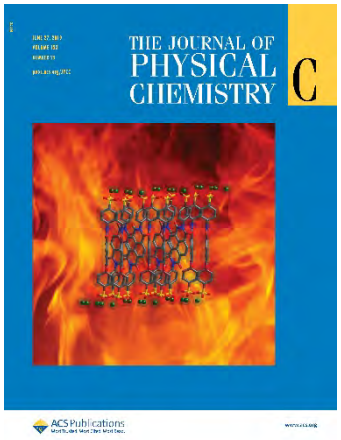


Figure 2. Unit cell of crystal **1** viewed along the *b* axis. Angle ϕ was defined by dihedral angle between π plane of **NDI** and phenylsulphonate ring.

表紙に採用



Electrostatic cation-anion interaction is effective to form tightly-bounded π-molecular assembly, which enhances the thermal stability and carrier transport property. Dianionic bis(benzenesulphonate)–naphthalenediimide ($BSNDI^{2-}$) formed simple 2:1 cation–anion pairs of $(Na^+)_2(BSNDI^{2-})$ (1), $(K^+)_2(BSNDI^{2-})$ (2), and $(NH_4^+)_2(BSNDI^{2-})$ (3), and their redox behaviours, thermal stabilities, crystal structures, electron transport properties, and dielectric constants were examined.

カチオンーアニオン間に働く強い分子間相互作用である静電相互作用は、分子集合体中のπ分子を強く束縛し、その熱的安定性とキャリア輸送特性を高めるのに有効である。ジアニオン性の bis(benzenesulphonate)–naphthalenediimide ($BSNDI^{2-}$)は、２：１の組成の単純カチオンーアニオン対を形成し、本論文では$(Na^+)_2(BSNDI^{2-})$ (1), $(K^+)_2(BSNDI^{2-})$ (2) および $(NH_4^+)_2(BSNDI^{2-})$ (3)塩の酸化還元、熱安定性、結晶構造、電子輸送および誘電特性を評価した。