ジベンゾ[g,p]クリセンを基材とする液体エレクトレットの開発

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Liquid electrets based on dibenzo[*g*,*p*]chrysene ([1]*Ryukoku Univ.*, [2]*NIMS,* [3]*Hokkaido Univ.*)
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Dibenzo[*g*,*p*]chrysene (DBC, $C_{26}H_{16}$) has attracted much attention due to its twisted π-conjugated structure of a polycyclic aromatic hydrocarbon. It is expected to be applied to photo-responsive and electronic materials. In this presentation, we have synthesized two kinds of DBC liquid compounds functionalized with bulky yet flexible branched alkyl chains at the 2,7,10,15-positions (**1**) and 3,6,11,14-positions (**2**) (Fig. 1a). We have investigated the liquid physical properties utilizing rheology, DSC, density, positron annihilation lifetime spectroscopy, and various optical spectroscopies. We have also explored the electret properties of the DBC liquids for vibration sensor applications (Fig. 1b). s
Keywords: dibenzo[g,p]chrysene, polycyclic aromatic hydrocarbons, functional molecular liquids, electrets, vibration sensor

ジベンゾ[*g*,*p*]クリセン（DBC）は芳香環がねじれて非平面性を強く帯びており、光応答材料や電子材料として材料化学の分野で注目を集めている。本研究では、水酸基を位置特異的に導入した DBC[1)]を柔軟かつ嵩高い分岐アルキル鎖で修飾・保護することで常温液状の 2 種類の DBC 誘導体（**1**, **2**, Fig. 1a）を得た。液体物性の評価は、レオロジー、DSC、密度、陽電子消滅寿命ならびに各種分光解析にて行った。また、DBC 液体をエレクトレット化[2)]し、自由変形性振動センサ機能（Fig. 1b）の評価を行った。

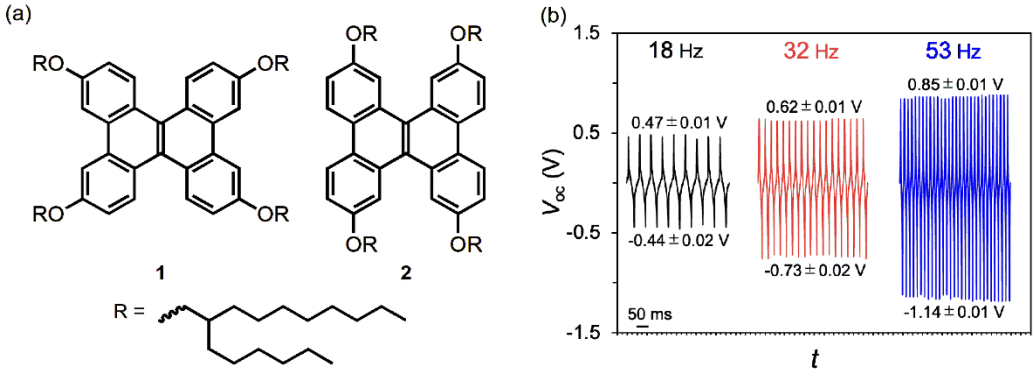

Fig. 1. (a) Molecular structure of alkylated dibenzo[*g*,*p*]chrysene liquid derivatives (**1**, **2**); (b) Open circuit voltage (V_{oc}) characteristics of fabricated mechano-electric generators of the electretized **2** under continuous vibration at different frequencies (18, 32, and 53 Hz).

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