

伝熱性ナノセルロースによる透明熱伝導フィルム

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Thermally conductive and optically transparent flexible films with surface-exposed nanocellulose skeletons

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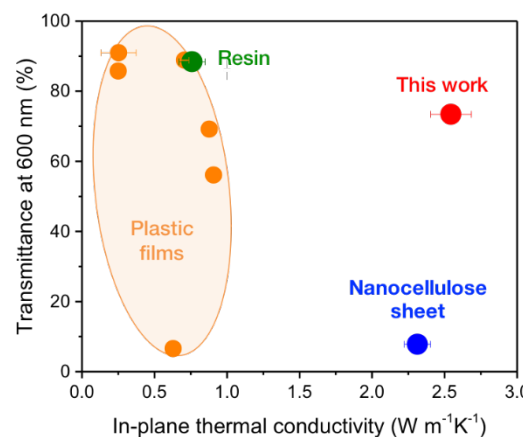


Figure 1. The relationship between thermal conductivity and transmittance for materials.

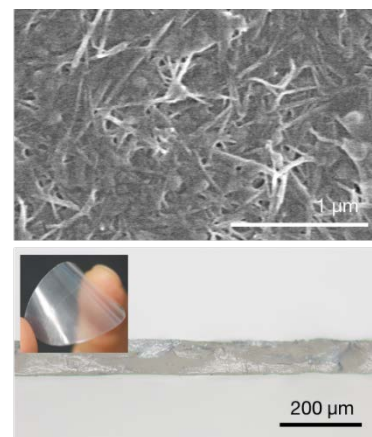


Figure 2. Surface and cross-section view of the composite film.

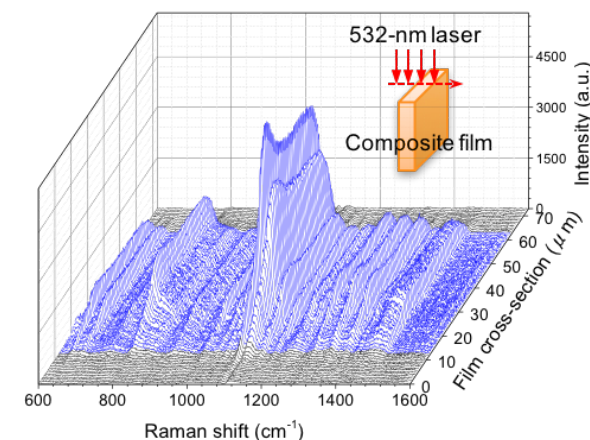


Figure 3. 3D waterfall diagram of the Raman spectra of the cross-section of the composite film.

ホヤ由来ナノセルロースを伝熱骨格として透明樹脂を複合し、フィルム表層に樹脂が残存しない構造を形成することで、透明性と高熱伝導性を合わせ持つフィルム材料を創出した。透明熱伝導フィルムは、小型・薄型の電子デバイスにおける新規排熱基板材料として応用が期待される。

The thermally conductive and optically transparent film has been fabricated by using the nanocellulose skeletons and transparent resin. We found that removal of the thermally-insulating surface resin layers is the key to exploit the intrinsic thermal performance of the skeletons.