

# 29<sup>th</sup> IIR-ASMat Seminar (IIR-ASMat & CLS 合同セミナー)

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## Advanced polymer materials for human thermal comfort

Thermal comfort is essential for human well-being, particularly in the face of global warming and increasingly extreme weather conditions. To address this, various modes of heat transfer have been explored through the development of advanced materials whose properties are integrated into building materials, cosmetics, and textiles. In this talk, we will present our recent studies on radiative and evaporative thermal transfer using polymer composites that enable passive thermal regulation for applications in fabrics, windows, and construction materials. We will also discuss how human hair exhibits adaptive cooling characteristics in relation to solar radiation and thermal emission to the environment. Furthermore, we will introduce our latest research on thermally responsive metafabrics and window films with tunable emissivity. Finally, we will present our bioinspired sunscreen, which offers both thermal comfort and UV protection, drawing inspiration from the structure of fur and human hair.

日時：2026年1月21日（水）14:00~15:00

場所：東京科学大学すずかけ台キャンパス S8棟 1階 レクチャールーム

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