

令和元年度 第2回  
九州大学 分子・物質合成プラットフォームセミナー

◆ 講演題目 ◆

Energy Transfer in Polymer-Wrapped Carbon Nanotubes & Large-Scale  $sp^3$  Functionalization

◎日時： 令和元年10月4日（金）  
15:00 - 16:00

◎場所： 九州大学伊都キャンパス  
ウエスト4号館314  
物質系4番講義室

**Abstract**

The optical properties of semiconducting single-walled carbon nanotubes (SWNTs) are quite unique and their narrowband emission in the near-infrared and excellent charge transport properties make them desirable materials for optoelectronics. Up to now, the photoluminescence yield (PLQY) of dense layers of semiconducting SWNTs (e.g. in optoelectronic devices) was low and also limited by strong self-absorption owing to their small Stokes shift. To tackle these shortcomings, specific  $sp^3$  defects were introduced as exciton trapping sites leading to red-shifted emission, with longer exciton lifetimes and higher PLQYs. We have developed a simple and scalable method for  $sp^3$  functionalization of polymer-wrapped SWNTs in organic, non-halogenated solvents, thereby making it compatible with nanotubes dispersed by shear-force mixing and subsequent device processing techniques. The now obtainable large quantities of high-quality  $sp^3$  functionalized SWNTs pave the way toward their application in more efficient thin film optoelectronic devices.



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Jana Zaumseil先生を  
お迎えしてセミナーを  
開催いたします。  
多数ご参加いただけます  
ようご案内致します。

参加費無料

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- 協賛 高分子学会九州支部
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