第２回ナノトライボロジー研究ステーションセミナー

日時：　平成２７年３月２６日１３時００分 ～ １６時１０分 （３，４限）
　　平成２７年３月２７日　９時００分 ～ １２ 時１０分（１，２限）
　　上記いずれも１０分程度の休憩をはさみます。

場所：電気通信大学　東３号館（総合研究棟） マルチメディアホール３０１号室

講師：　Dr. Martin Dienwiebel
　　（Karlsruhe Institute of Technology, Micorotribology Center, グループリーダー）

講演題目：　"Applied Nanotribology - From Atoms to Car Engines"
　　「応用ナノトライボロジー - 原子から自動車のエンジンまで」

講演概要：

According to a recent calculation by Holmberg et al., approximately one third of the fuel consumed by passenger cars worldwide is burned to overcome friction. Therefore the reduction of friction is an important technological and societal goal in order to conserve energy and resources for future generations. The difficulty in reaching this goal is that friction and the wear behavior of mechanical machines such as internal combustion engines are often controlled by effects that take place on the last nanometers of the sliding surfaces. In this series of lectures it will be shown how nanotribological techniques can help to increase our understanding of these effects. The lecture will start with a brief overview of background, concepts and terminology. We will discuss the influence of the real contact area, frictional power density and the influence of mechanical mixing or third body formation on the dynamics of the friction coefficient. Several examples for different tribological systems will be introduced and it will be explained how nano-scale experiments together with advanced computer simulation can be used to obtain a better understanding of the tribological phenomena.

In the last part of the lecture series and overview on very new materials and lubricants will be introduced that have the potential to lead to extreme friction reduction or "Superlubricity". In this part of the lecture recent examples such as the nanotribology of graphene as a solid lubricant and the lubrication of diamond-like carbon (DLC) with glycol mono-oleate (GMO) will be discussed.

参加費：　無料

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