

平成 17 年 6 月 16 日

応用物理学会北海道支部
会員各位

応用物理学会北海道支部

講演会のお知らせ

下記講演会を開催いたしますので、多数ご参加下さいますようご案内申し上げます。

演題：凝集系の電子物性と応用「結晶とアモルファス状態の比較」

講師：J. Singh 氏（チャールスダーウイン大学・工学部・教授）

日時：平成 17 年 6 月 30 日（木） 15:00～17:00

場所：北海道大学工学部物理工学系オープンセミナー室（A 1 - 70）

主催：応用物理学会北海道支部

講演の要旨

Condensed matter exists in many forms, soft condensed matter to hard solids.

Their macroscopic behaviour (look) is contributed dominantly by their bonding structures, which are based on the electronic states of their constituents, atoms and molecules. These electronic states are responsible for a material to be metal, insulator or semiconductor. Such materials can exist in different forms. In this talk, the electronic properties of amorphous and crystalline semiconductors will be reviewed and compared in view of their applications. Amorphous semiconductors lack long-range orders, which give rise to several new electronic processes that do not occur in crystalline solids. Such a difference brings new applications. As a result, amorphous semiconductors are used in fabricating many opto-electronic devices such as solar cells, large area thin film transistors (TFT), memory storage discs etc., and hence have immense industrial applications. Most of such devices operate on the principle of first creating excited electron and hole pairs by optical excitations or injections and then their separation and collection or their radiative recombination. Some of these new phenomena are used in new frontier technologies, which will be briefly reviewed in this talk.

[1] J. Singh and K. Shimakawa, Advances in Amorphous Semiconductors (Taylor & Francis, London and New York, 2003).

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