

Sekce chemie PřF UK v Praze zve všechny zájemce na přednášku z cyklu

## **Quo Vadis Chemie**

## Indium Mediated Reactions and Their Applications



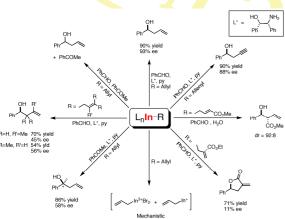
kterou přednese

## **Profesor Bakthan Singaram**

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dne 14. 9. v 15:00 hod. v posluchárně CH2, v budově chemických kateder PřF UK Hlavova 8, Praha 2

Abstrakt: The reductive capability of the InCl<sub>3</sub>/NaBH<sub>4</sub> system significantly depended on the solvent used. Exploration of the InCl<sub>3</sub>/NaBH<sub>4</sub> system in THF and CH<sub>3</sub>CN by <sup>11</sup>BNMR spectroscopy revealed two different boron by-products. A variety of aromatic, heteroaromatic and aliphatic nitriles were reduced to their corresponding primary amine. The system was able to reduce nitriles in the presence aromatic halides, methoxy groups and in the presence of heteroaromatic rings, such as thiophene. Binary metal hydride systems composed of



dichloroindium hydride (HInCl<sub>2</sub>) and an additional hydride, such as boranetetrahydrofuran (BH<sub>3</sub>:THF) or diisobutylaluminum hydride (DIBAL-H.) can reduce carbon-halogen bonds as well as an electrophilic group, such as a nitrile, ester, or carboxylic acid.

A simple, efficient, and general method for the indiummediated enantioselective allylation and propargylation of aromatic and aliphatic aldehydes under Barbier-type conditions in a one-pot synthesis affording the corresponding chiral alcohol products in very good yield (up to 90%) and enantiomeric excess (up to 95%) can be carried out as well.