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<td><strong>Author(s)</strong></td>
<td>Li, Lusi</td>
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<td><strong>Citation</strong></td>
<td>Li, L. (2010, March). Carbon nanotube supported bimetallic catalysts for selective hydrogenation of cinnamaldehyde. Presented at Discover URECA @ NTU poster exhibition and competition, Nanyang Technological University, Singapore.</td>
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<tr>
<td><strong>Date</strong></td>
<td>2010</td>
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<td><strong>URL</strong></td>
<td><a href="http://hdl.handle.net/10220/9070">http://hdl.handle.net/10220/9070</a></td>
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Carbon nanotube supported bimetallic catalysts for selective hydrogenation of cinnamaldehyde

Objective
To synthesize bimetallic catalyst supported on carbon nanotubes for the selective hydrogenation of carbonyl group yielding the unsaturated alcohol.

Background
The selective hydrogenation of α, β-unsaturated aldehyde, yielding the unsaturated alcohol is of particular interest because of the importance of such alcohols in the fine chemicals industry.

Experimental

- **Catalyst Preparation**
  - Pt: Promoter

- **Cinnamaldehyde Hydrogenation**

  ![Diagram](image)

  - Cinnamyl Alcohol (CALD)
  - H2
  - Hydrocinnamaldehyde (HALD)

  Conversion(%): Pt5/CNTs = 62.7, Pt5/CNTs-973 = 42.6, Pt5Fe1.47/CNT-973 = 56.5, Pt5Co1.56/CNT-973 = 66.2
  - Selectivity (%): CALC = 0, HALC = 2.4, HALD = 0

  ![Graph](image)

  - CV Stripping: Temperature Treatment
  - CO Stripping: Promoter Effect

- **Catalyst Characterizations**
  - TEM: Pt5/CNT, Pt5/CNT-973
  - Pt5Fe1.47/CNT-973, Pt5Co1.56/CNT-973

Conclusion
--Removal of surface oxygen enhances the catalytic activity of Pt/CNT.
--Fe and Co, as promoters, further improve the selectivity and conversion, respectively.

**Project Title:** Fine Chemical Synthesis by either Selective Oxidation or Hydrogenation
**Supervisor:** Asst Prof Yang Yanhui