

Course for our students:

Introduction to surface chemistry and heterogeneous catalysis (5 hp)

In the course, we will discuss the following topics:

1. Surface structures
2. Surface thermodynamics
3. Particulates/ supported particulates
4. Heterogeneous catalysis

The course is aimed at giving a background for continued studies in the area of heterogeneous catalysis by learning basic surface chemistry and theoretical models and concepts that can be used to understand variations in the catalytic activity. In particular, the first part of the course is devoted to discussing the surface chemistry of transition metals, as these are commonly used as active components in heterogeneous catalysis. We will introduce the nomenclature used in surface science community and discuss surface geometries and surface thermodynamics. In the end of this first part, we will briefly introduce the more complex problem of supported particulates. In the second part, we will discuss heterogeneous catalysis by studying catalytic properties of transition metal surfaces. The concepts learned are, however, general and can also be used for other catalysts.

Course material:

Part1: Handouts

Part2: Paper by Hammer and Norskov, Adv. Catal. 45, 71 (2000).

Schedule:

Wednesday 8 Dec 13.15 - 16 (approximately)

Monday 13 Dec 13.30 - 16

Tuesday 14 Dec 9-12

Room: Our seminar room

Home exam in January.

Please sign up with Hans on Monday or Tuesday this week!