

Surfaces and Interfaces

Lesson 1

MSE 304

Francesco Stellacci



Information on the Class

- All information for this class will be on Moodle
- In particular on Moodle you will find chapters of various books that can help you study for the class
- This class will be taught in a classical way, this means that:
 - There will be a single oral exam
 - The whole class, including the exam, is in English

Information on the Teachers

- Prof. Francesco Stellacci

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(Lectures)

- Prof. Nako Nakatsuka

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- Emie-Kim Ngo Tan

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(Exercises)

Outline of Lesson 1

- ☐ What is the course about
- ☐ Definitions of Surfaces and Interfaces
- ☐ Clarification of the Needed Background for the Class
- ☐ Definition and Meaning of Surface Energy

Surfaces and Interfaces

- **“God made solids, but surfaces were the work of the Devil”
— Wolfgang Pauli**
- **“Surfaces are the playground of Solid-State Physics”
Plummer**

What is Surface Science?

- Surface Science is that branch of Science that studies the structure, properties, and the phenomena that happen at surfaces and interfaces.
- [In part] Surface Science is that part of thermodynamics that tries to understand and characterize surface and interfacial phenomena.
- There is a quantum mechanical component to surface science. We will try to address it in class.

But Careful

- Surface Science is ***not*** a mature field.
- This is why we perceive it as the work of the Devil.
- This class will leave lots of holes, not for pitfalls of the instructor(s) –or not *only* for that- but because of the state of the field.

Why do we study it then?

Before we Start, a consideration on Materials Science
