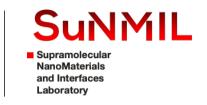


#### Institute of Materials - Institute of Bioengineering sunmil.epfl.ch



# 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

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#### **Outline of Lesson 1**

- □What is the couse 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 wholes, 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

