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## (I) Synthesis and characterization of oxide materials

*Tuesday 20 June 2023 08:30 (30 minutes)*

Innovation in materials science and engineering resides in our ability to control the structure of materials at the nanoscale in order to design advanced materials with outstanding functional properties (electrical, optical, magnetic, photocatalytic, etc.). One of the most powerful means to arrange matter at the nanoscale is to use laser produced plasmas due to their exceptional ability to provide simultaneously ions and neutral atoms with various energies in a non-equilibrium environment. Moreover, the possibility to perform growth in a reactive environment such as oxygen or to operate in a double-beam configuration offers an additional flexibility to control the stoichiometry of oxide materials, the dopant content and the surface quality. In this presentation, we will focus on the use of pulsed laser deposition for the growth of various oxide materials in the form of thin films, including undoped and doped vanadium dioxide and titanium oxide. They are exploited for the development of the next generation of photonic devices or for advanced environmental applications such as water treatment.

### **Keyword-1**

Material oxides

### **Keyword-2**

Pulsed Laser Deposition

### **Keyword-3**

Thin films

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