

EPFL



Video





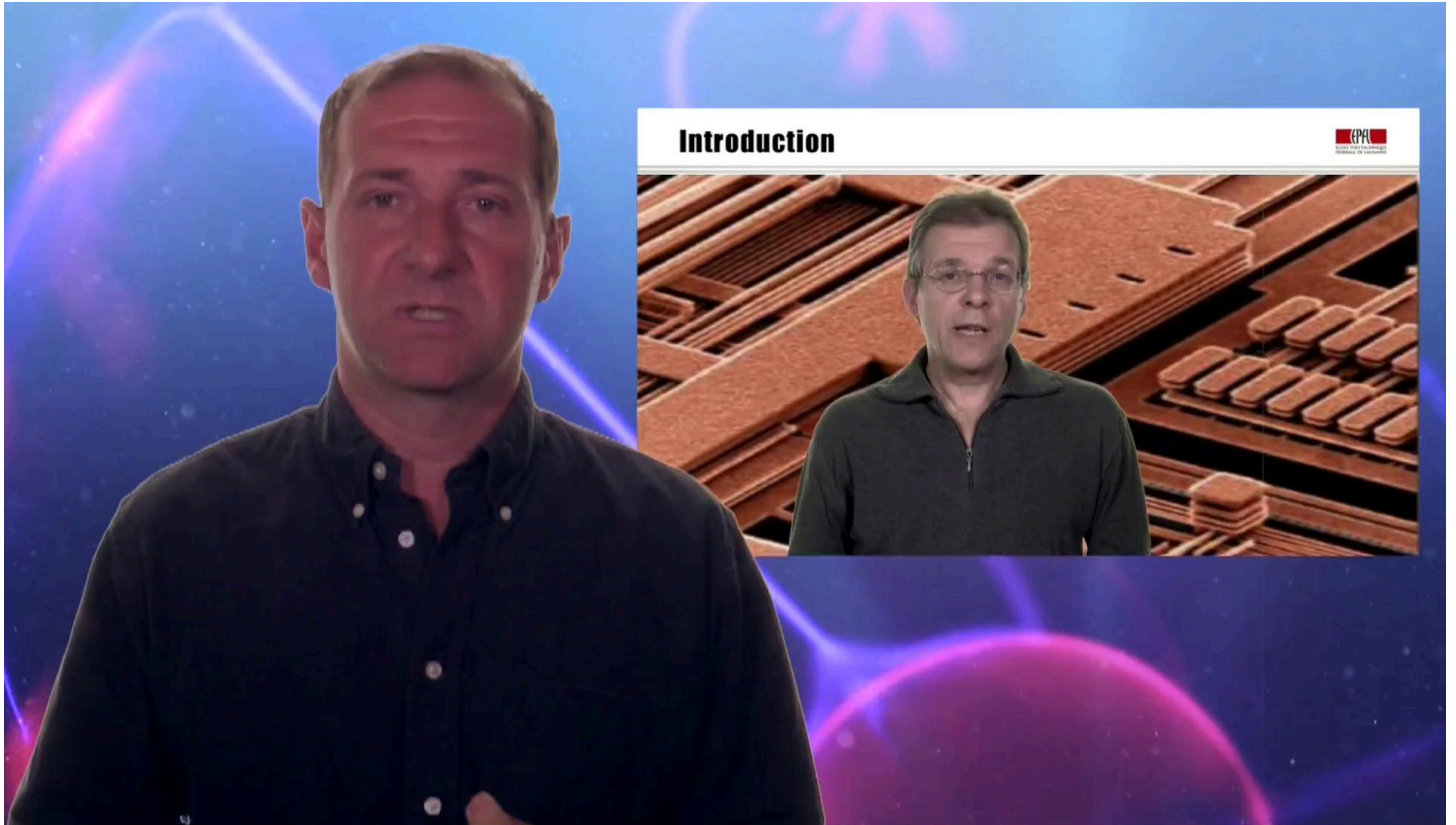
Plasmas are widely used in industry for many applications and products that we have in our daily lives, As shown in the five modules of this lecture on basic industrial plasmas. The plasma parameters in plasma physics are very different from fusion and astrophysical plasmas. These differences are explained in the first module, in which we provide the general introduction to basic industrial plasmas and plasma chemistry. We will show the one key to industrial plasma processing is that high temperature plasma chemistry, at thousands of degrees Centigrade, can be applied to low temperature substrates, such as glass, plastics, and even people. In the next two modules, we describe how a plasma actually starts, that is how a plasma forms, from the moment when the voltage is first applied across electrodes in a gas. As an example of application, we consider how to apply our knowledge to a practical case in the design of satellites. In the last two modules, we discuss the basic physics of the plasma sheath and the applications to plasma etching and macro-electronic manufacturing. We show what happens when a plasma that has formed comes into contact with a material surface.

Notes

Summary



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Clearly this is important for any plasma application where devices are manufactured. One extremely important and lucrative example is the field of micro-electronics, which has revolutionized our lives over the last 50 years. This part of the course is taught by Dr. Alan Howling, a senior scientist with long-standing experience in industrial and associated application of plasmas.

- Notes

Summary

