

**Meeting nº 10****2008.03.19 – 14h-15h****Room: B1.13****Agenda:**

14h : Petr Zabka, Analysis and Design of Conjugate Cam Mechanisms with Oscillating Follower
14h 30 : Mathew.T.M, Some thoughts on Tribocorrosion characteristics of Multifunctional $Mn_x(C, N, O)_y$ films

The following works will be the presented:

1. Analysis and Design of Conjugate Cam Mechanisms with Oscillating Follower (Mario Lima, mlima@dem.uminho.pt)

Abstract:

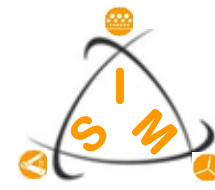
The presentation will deal with the following topics:

- Basics of cam mechanisms;
- Terminology of cam systems;
- Different types of curves; Kinematic characteristics.
- Geometry of a Conjugate Cam mechanism with oscillating follower;
- Design procedure; the complete sequence of the design steps will be explained for a disc cam with oscillating roller follower. The computer aided design process uses MATLAB software for the analysis of curves and their kinematic characteristics and transfers the selected resulting curves to SolidWorks for the Cams design. This is later used for the Cam manufacturing technique up to the obtaining of the real cam in a CNC machine.

2. Some thoughts on Tribocorrosion characteristics of Multifunctional $Mn_x(C, N, O)_y$ films, (M.T. Mathew, mathew@dem.uminho.pt, L.A. Rocha, lrocha@dem.uminho.pt and F. Vaz, fvaz@fisica.uminho.pt)

Abstract:

Tribocorrosion studies on the thin films for decorative coating applications are attracting enormous attention in scientific research. These decorative coatings require simultaneously a good appearance and attractive colorations for market applications (for eg. mobile phones, watches, and jewelleryes), but also it needs to protect the surface below to ensure the quality and durability of the



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product/commodity. Recently, a novel technique has been developed, which can account for this simultaneously effect (may be synergism and antagonism) of wear and corrosion parameters on total material degradation: “Tribocorrosion studies”. This technique assists in the evaluation of the performance or behaviour of such decorative films in different service conditions, by evaluating them simultaneously, and thus putting the characterization in close relation with real-life mechanisms. In fact, the practical relevance of the tribocorrosion phenomena may be found in a wide range of industrial sectors, and in biomedical engineering and devices.

Last few years, many researchers were involved in the project on tribocorrosion behaviour of thin films, which is running at the department of Mechanical engineering, University of Minho, in collaboration with the Department of Physics, University of Minho. A good progress is made in the work and interesting/promising results and observations were achieved. This presentation will provide a road map of the above project, and present some recent results on TiC_xO_y films. Further, it also aimed to gather fruitful suggestions to formulate the future strategies of the research work.