



CENTRE DE LINGUISTIQUE APPLIQUÉE
UNIVERSITÉ DE FRANCHE-COMTÉ

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Presenting Research Papers in English at a Colloquium

A Simulation at the CLA (Centre for Applied Linguistics)
Université de Franche-Comté / COMUE UBFC



Quemada Lecture Hall

Monday March 11th & Monday March 18th 2019

Monday March 11th – Programme

Each presentation will be followed by questions from the audience.

8.50 am: Doors open

9.05 am: Welcome and Introduction

9.10-9.35 am: Daniel Guneysu, PhD student in Engineering Sciences, MN2S, FEMTO-ST.

A New Microfluidic Device Used to Analyze Extracellular Vesicles to Perform Cancer Diagnostics

Extracellular vesicles (EVs) and subcellular species are present in all biological fluids and have a promising future in biological applications. The detection of EVs in their physiological environment and their analysis in different subsets represent a great challenge. To reach this goal, it has been acknowledged that researchers should combine several techniques and should improve technical and pre-analytical phases. We have developed a microfluidic device which enables us to separate particles from a complex sample by using hydrodynamic filtration. We then capture EVs with specific antibodies, using our own biochip. These methods allow us to obtain important information about EVs which have high potential and relevancy in clinical testing because they would permit us to diagnose numerous human diseases at an early stage.

9.35-10 am: Margaux Topenot, PhD student in Mechanics, FEMTO-ST Institute, Applied Mechanics Department, UMR 6174 CNRS/UFC/ENSMM/UTBM.

The Design and Dynamic Strength of Electric Rotor Parts

Trains are set into motion through electrical energy. Electrical signals are synthesized by the Pulse Width Modulation (PWM) technique. This results in torque oscillations over a wide excitation range and with large amplitudes, sometimes leading to the rupture of several rotating parts due to resonance. In addition, the optimization of the rotors leads to an increase in speed, which leads to new risks associated with vibration. The objective of this study is to verify dynamic modeling of the rotors of electrical machines. In addition, we want to define a methodology to design rotors through a finer understanding of the PWM excitation. This will allow us to quantify the degree of confidence of a given solution for the dimensioning in vibratory fatigue of rotating parts.

10. am: Break-Complementary Refreshments

10.15-10.40 am: Ludovic Bebon, PhD student in Materials Science, FEMTO-ST Institute, Applied Mechanics Department, UMR 6174 CNRS/UFC/ENSMM/UTBM.

Observation and Modelling of Metallic Particles during Hydration

The increase in the demand for energy and the need to reduce greenhouse gas emissions mean we need new technologies to store the energy produced by renewable sources. Hydrogen can be produced during under-consumption of electricity, stored in a tank and then converted back into electricity with a fuel cell when needed. The solid storage of hydrogen is the key issue of our research. Several metal alloys absorb hydrogen in a crystalline structure and, reversibly become metal hydrides. During the process metallic particles grow and sometimes fracture into smaller particles, which filter down to the bottom of the storage tank. When hydrogen is removed from the tank, the metal alloys desorb hydrogen and the particles shrink. This “breathing” of the material causes cyclic stress to the tank material bringing about damage and even breakage. During our research we carried out an experiment in order to study these particles during the hydrogenation process. We measured the changes in volume and studied the fractures in particles. Our research permitted us, with the use of the discrete element method, to develop a numerical model of a hydride particle to explain the process of fracturing.

10.40-11.05 am: Philémon Marcel-Millet, PhD student in Sports Science C3S Laboratory, EA4660, UBFC.

The Firefighter's Autonomic Nervous System Responses during Firefighting Activity.

Among the emergencies that firefighters have to deal with, firefighting involves the most cardiovascular stress, significantly increasing the risk of death from cardiac arrest. Heart rate and its variability can be used to assess the level of cardiac stress during exercise and the recovery phase, reflecting the activity of the autonomic nervous system and how it changes. In this study, we analyzed autonomic nervous system responses during a simulated firefighting activity with firefighters.

Closing Exchanges and Remarks.

Monday March 18th – Programme

Each presentation will be followed by questions from the audience.

8.50 am: Doors open

9.05 am: Welcome and Introduction.

9.10-9.35 am: Nicolas Meyer, PhD student in Ecology, Chrono-Environment Laboratory, UMR 6249 UBFC.

Good Parenting: an Endless Task!

Parents always have to find the right balance between their investment in their offspring and their investment in their own future. Shorebirds are interesting biological subjects when studying parental care as they offer such a diversity of strategies. While breeding in Arctic ecosystems, parents have to cope with harsh conditions and low body reserves, during the long incubation period. So adults must find the best compromise between caring for their eggs and feeding in order to maintain their own physical condition. Incubation behavior stems from this compromise and can be described as an alternation of incubation bouts and feeding bouts. However, beyond incubation duties, offspring survival also relies on nest protection, as predation is the main threat for the eggs. As a diversity of antipredator behavior has been observed in shorebirds, we assumed that the daily management of incubation could also affect predation risk on the clutch. By monitoring the incubation behavior of seven sandpiper species (genus *Calidris*) in twelve arctic sites, we investigated the influence of incubation behavior on the probability of nest predation.

9.35-10 am: Ayman Hoblos, PhD student in Optics, Femto St. institute, UMR CNRS 6174, UBFC.

Weak Electric Field Sensor Based on Fano-Resonance

Electric field sensors based on light-matter interaction are highly sought after and very useful in many medical applications for personal health care. (EEG or ECG) In addition, they can also be of use in several military applications. The growing demand for high detection has led to the emergence of new technological solutions. In particular, photonic technology, a field of research with a high potential for the development of electric field sensors (E-field sensor). To that end, we have used a photonic crystal engraved into a Lithium Niobate (LN) membrane. We use the ferroelectric material Lithium Niobate, because of its excellent electro-optic, nonlinear optical and piezoelectric properties. Our Fano resonance could be revolutionary in developing high sensitivity sensors like electric field sensors within electro-optic materials.

10. am: Break-Complementary Refreshments

10.15-10.40 am: Thuy Duong Dang, PhD student in Sociology, C3S Laboratory, EA4660, UBFC.

The Place of Culture in the Teaching and Learning of French as a Foreign Language In Vietnam

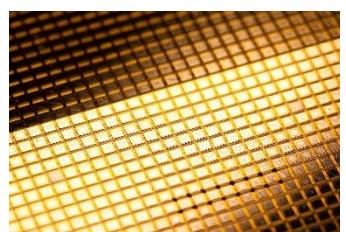
Language and culture are closely linked in the learning of foreign languages. Learners always come with their own vision of cultural interaction and the confrontation with a new cultural system may hinder their understanding of the contexts and situations they encounter in their language textbooks. This in turn can interfere with their apprenticeship. Our study aims to analyze the role that culture plays in French textbooks used in Vietnam and to do this we combine a linguistic and sociological approach. After analyzing cultural elements in eight textbooks used at the National University of Hanoi, we submitted questionnaires to students and teachers from the University's French department. In this talk, we will present the pre-survey, the population sample, the content and some of the results of our questionnaires.

10.40-11.05 am: Tony Dex Oduouga, PhD student in British Civilisation, LECLA n°592, English Department, TIL EA 4182/UB.

Women editors, catalysts of social and political reforms in Victorian England

By creating *The Englishwoman's Journal* (1858-1864), the co-founders of the Langham Place Group gave the floor to women so that they could comment on political subjects. For a long period, this had been an exclusively male activity. Bessie Rayner Parkes' mission, as the editor in chief, was to make sure editorial policies were respected. She did not hesitate to motivate other women to become involved, either by contributing articles or reading to get informed. That attitude would establish equilibrium in the fight for journalistic equality with men. My presentation will analyse the effect of this first feminist magazine on the workings of English politics, by pointing out, for instance, the process used by its editor in chief to defend her belief that equality between men and women could only improve life in British society.

Closing Exchanges and Remarks.



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