



ΕΘΝΙΚΟΝ ΚΑΙ ΚΑΠΟΔΙΣΤΡΙΑΚΟΝ  
ΠΑΝΕΠΙΣΤΗΜΙΟΝ ΑΘΗΝΩΝ

ΠΑΝΕΠΙΣΤΗΜΙΟΝ ΚΥΠΡΟΥ



ΤΜΗΜΑ ΜΑΘΗΜΑΤΙΚΩΝ  
ΤΜΗΜΑ ΜΕΘΟΔΟΛΟΓΙΑΣ, ΙΣΤΟΡΙΑΣ ΚΑΙ ΘΕΩΡΙΑΣ ΤΗΣ  
ΕΠΙΣΤΗΜΗΣ  
ΤΜΗΜΑ ΦΙΛΟΣΟΦΙΑΣ-ΠΑΙΔΑΓΩΓΙΚΗΣ ΚΑΙ ΨΥΧΟΛΟΓΙΑΣ

ΤΜΗΜΑ ΕΠΙΣΤΗΜΩΝ ΤΗΣ ΑΓΩΓΗΣ  
ΤΜΗΜΑ ΜΑΘΗΜΑΤΙΚΩΝ ΚΑΙ ΣΤΑΤΙΣΤΙΚΗΣ

## ΑΝΑΚΟΙΝΩΣΗ

Στο πλαίσιο του Σεμιναρίου του ΠΜΣ Διδακτική και Μεθοδολογία των  
Μαθηματικών θα πραγματοποιηθεί διάλεξη με τίτλο

**“ICT-BASED EXPLORATION OF CONNECTIONS BETWEEN MATHEMATICAL  
DOMAINS”**

την Τετάρτη 20 Νοεμβρίου 2013 στις 18.00, στην Αίθουσα Σεμιναρίων της  
Ελληνικής Μαθηματικής Εταιρίας (Πανεπιστημίου 34, 1<sup>ος</sup> όροφος)

Ομιλητής: Prof. Thierry Dana-Picard, Jerusalem College of Technology

e-mail: [dana@jct.ac.il](mailto:dana@jct.ac.il)

# ABSTRACT

New technologies provide an efficient tool for widening the mathematical landscape discovered by the students through traditional ways of learning.

We propose a reflection about the exploration process and a canvas for a multi-task activity ,involving handwork, CAS assisted computations and related websurfing. Such activities have a great epistemic value, besides the practical output.

The example we deal with is based on the study of 1-parameter families of definite integrals. The study involves paper-and-pencil work, the usage of a Computer Algebra System (here we used Derive 6), and search over the web for suitable databases. A first output is a connection between Calculus and Combinatorics. Moreover the usage of the web databases enhances a more profound understanding of why these parametric integrals are important (both in Mathematics and in Physics) and where they appear in "real world", together with their combinatorial counterpart, showing families of known numbers such as Fibonacci sequences and Catalan numbers.

This activity has been performed by groups of first year students in a teacher-training college and in an engineering college.

# SHORT CURRICULUM VITAE

■

Professor Thierry Dana-Picard, 59, has been the president of the Jerusalem College of Technology (JCT) since 2009 for a four-year term. A respected French-born mathematician, he holds two PhD's, from Nice University in France (Algebraic Geometry) and from Bar Ilan University in Israel (Non-commutative algebra, his thesis relies on a computer based research). Prof. Dana-Picard served as Math Department head successively in two Israeli teacher-training colleges, and is now a faculty member at JCT where he began a couple of weeks ago to head a Research Chair. He published more than 70 scientific articles in Mathematics, Mathematics Education, in particular in technology-based math education, as well as articles on Torah and Science. Prof. Dana-Picard is a reviewer for various journals in his field of expertise and is a member of the editorial board of mathematical education journals in Europe. He also served as an advisor for several universities in Israel, including the Weizman Institute, Haifa University and Ben-Gurion University.

---