ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

Course Nr: EDOC-Equivalence

Title: Enumeration of Real Rational Curves on Del Pezzo Surfaces

Professor: Eugenii Shustin (Tel Aviv University)

Credit: 2   *Exam: Oral*

Time: *Wednesday March 5th, 2008 from 10 AM to 12 PM*
                 Thursday March 6th, 2008 from 10 AM to 12PM

                 Wednesday March 19th, 2008 from 10 AM to 12 PM
                 Thursday March 20th, 2008 from 10 AM to 12 PM

                 Wednesday April 2nd, 2008 from 10 AM to 12 PM
                 Thursday April 3rd, 2008 from 10 AM to 12 PM

                 Wednesday April 9th, 2008 from 10 AM to 12 PM
                 Thursday April 10th, 2008 from 10 AM 12 PM

                 Wednesday April 16th, 2008 from 10 AM to 12 PM
                 Thursday April 17th, 2008 from 10 AM to 12 PM

Room: AAC 006

Description:

The course is devoted to the theory of Welschinger invariants of real Del Pezzo surfaces, which is the key tool in the enumerative geometry of real rational curves on such surfaces. We present in detail the tropical geometry approach to the computation and qualitative study of Welschinger invariants, including Mikhalkin-type correspondence theorems between algebraic and tropical curves, recursive formulas of Caporaso-Harris type, existence of tropical enumerative invariants. We shall discuss qualitative phenomena in the behavior of the Welschinger invariants such as the asymptotic equivalence to the Gromov-Witten invariants, arithmetic properties, positivity, and the monotone dependence on the parameters.

Lausanne, February 12th, 2008
TR/tvw