1016-35-45 **Dmitry E Pelinovsky*** (dmpeli@math.mcmaster.ca), Department of Mathematics, McMaster University, 1280 Main Street West, Hamilton, Ontario L8S 4K1, Canada. *Dynamics of double-humped solitary waves in the fifth-order KdV model.*

The fifth-order Korteweg-de Vries equation is considered in the form

$$u_t + uu_x + u_{xxx} - u_{xxxxx} = 0$$

Travelling solitary waves may have decaying oscillatory tails for sufficiently large values of the velocity. Two single-humped solitary waves may form a bound state (which is a double-humped solitary wave). Existence and stability of these bound states are studied analytically and numerically. Results are compared to the Gorshkov-Ostrovsky variational theory and to the Sandstede reductive theory of multi-pulse solutions.

I will explain several results on the double-humped solitary waves:

(i) a modification of the Petviashvili's iterative method for numerical approximations of double-humped solutions

(ii) stability theory for solitary waves of the KdV model based on exponentially weighted Pontryagin spaces

(iii) the Chebyshev interpolation method for numerical computations of eigenvalues in the linearized stability problem

These results are based on the joint work with Marina Chugunova (McMaster University, Canada). (Received January 17, 2006)