On the non-analytic solutions of some nonlinear evolution-type PDEs

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Abstract. In this talk, the nonclassical solutions to K(m,n) equation and the Camassa-Holm system representing the nonlinear conservative models are considered. In particular, we focus on such wave-type solutions, which are described by the piecewise analytic functions satisfying the discontinuous dynamical systems. These solutions lose their analyticity at the matching points, where the conditions assuring the uniqueness of solution are violated. To obtain the profiles of solutions mentioned, the method of qualitative analysis are used. Basing on these methods, we'll present the construction of compactons, peakons, cuspons, loopons, and periodic nonanalytic solutions. To overcome the problem of integration of discontinuous vector field, the asymptotic systems admitting the analytic solutions will be used. Besides some exact nonanalytic solutions will be presented explicitely. At the end of the presentation numerical evolution of peakon's supported by the Camassa-Holm equation will be presented.