

# Global Properties of the KdV Evolution

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In the first talk, we will review the low regularity well-posedness results of the KdV equation introducing various methods used in the theory. We will also discuss a recent result on the smoothing properties of the equation which states that for initial data in Sobolev spaces ( $H^s$ ,  $s > -1/2$ ) the difference of the linear and nonlinear evolutions always belongs to a higher index Sobolev space. This is a joint work with Nikos Tzirakis.

In the remaining part of the lecture series, we will give an introduction to Global Properties of the KdV Evolution in graduate level, and give the details of the results mentioned in the first talk.