ON THE HUNTER-SAXTON AND CAMASSA-HOLM EQUATIONS

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During the last decade there has been considerable interest in the Hunter-Saxton (HS) equation $(u_t + uu_x)_x = \frac{1}{2}(u_x)2$ and the Camassa-Holm (CH) equation $u_t - u_{xxt} + 3uu_x = 2u_xu_{xx} + uu_{xxx}$. Both equations appear in a physical context; the HS equation as a model of nematic liquid crystals and CH as a shallow water model. Both equations are completely integrable and enjoy various intriguing properties. In the talk we will survey some of the fundamental properties of these equations, and describe some recent developments.