Well-posedness for some dispersive perturbations of Burger's equation

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We show that the Cauchy problem associated to a class of dispersive perturbations of Burgers' equations containing the low dispersion Benjamin-Ono equation

$$\partial_t u - D_x^\alpha \partial_x u + u \partial_x u = 0\,,$$

with $0 < \alpha \le 1$, is locally well-posed in $H^s(\mathbb{R})$ for $s > s_\alpha := \frac{3}{2} - \frac{5\alpha}{4}$.

As a consequence, we obtain global well-posedness in the energy space $H^{\frac{\alpha}{2}}(\mathbb{R})$ as soon as $\frac{\alpha}{2} > s_\alpha$, i.e. $\alpha > \frac{6}{7}$.

This talk is based on a joint work with Luc Molinet (Université de Tours and Stéphane Vento (Université Paris 13))