On the controllability and stabilization of the linearized Dispersion Generalized Benjamin-Ono equation on a periodic domain. Preliminary report.

In this talk, solutions of the linearized Dispersion Generalized Benjamin-Ono equation are studied

$$\partial_t u(x, t) + D^{1+a} u(x, t) = f(x, t)$$

for $0 < a < 1$, $x \in [0, 2\pi]$ and $t \geq 0$ where $D^{1+a}$ denotes the homogeneous derivative. We impose that

$$\frac{\partial^k u}{\partial x^k}(0, t) = \frac{\partial^k u}{\partial x^k}(2\pi, t)$$

for $k = 0, 1, 2$ so that the process is $2\pi$-periodic in $x$, and additionally, it is assumed that the distributed control $f$ is generated by a linear feedback $aw$ conserving the volume $\int_0^{2\pi} u(x, t) dx$. Included in the discussion are the related controllability and stabilizability preliminary results. (Received September 22, 2015)