1056-42-953   **Frederic Bernicot** (`frederic.bernicot@math.univ-lille1.fr`), CNRS & Universite Lille 1, Laboratoire de Mathematiques Paul Painleve, Villeneuve d'Ascq Cedex, 59655 , France, and **Rodolfo H. Torres*** (`torres@math.ku.edu`), Department of Mathematics, University of Kansas, 1460 Jayhawk Blvd, Lawrence, KS 66045-7594. *Sobolev space estimates for a class of bilinear pseudodifferential operators unbounded on Lebesgue spaces.*

The reappearance of a sometimes called exotic behavior of certain classes of pseudodifferential operators is investigated. The phenomenon is shown to be present in a recently introduced class of bilinear pesudodifferential operators, which can be seen as variable coefficient counterparts of the bilinear Hilbert transform and other singular bilinear multipliers operators. The unboundedness on product of Lebesgue spaces but the boundedness on spaces of smooth functions (which is the exotic behavior referred to) of such operators is obtained. (Received September 19, 2009)

1