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**Paolo Aluffi** and **Leonardo Constantin Mihalcea\*** ([lmihalce@math.duke.edu](mailto:lmihalce@math.duke.edu)), Mathematics Department, Duke University, Box 90320, Durham, NC 27708. *Chern-Schwartz-MacPherson classes for Schubert varieties in the Grassmannian.*

A conjecture of Deligne and Grothendieck states that there is a functorial theory of Chern classes on possibly singular varieties, viewed as a natural transformation from the group of constructible functions to the homology (or Chow group) of a compact variety  $X$ . This conjecture was solved in 1973 by R. MacPherson; the classes he defined (now known as Chern-Schwarz-MacPherson - or CSM) turn out to be the same as those defined by M.H. Schwartz, by different methods.

In joint work with Paolo Aluffi, we give explicit combinatorial formulae for the CSM classes of the Schubert varieties in the Grassmannian. The main tools used in the computation are a new formula for the CSM classes recently discovered by P. Aluffi and a Bott-Samelson resolution of a Schubert variety. An unexpected feature is a certain positivity satisfied by these classes; we have proved it in few cases, and it is conjectured to hold in general. (Received September 03, 2006)