

1144-32-39

Alí Guzmán Adán*, Clifford Research Group, Department of, Mathematical Analysis, Ghent University, Krijgslaan 281, 9000 Ghent, Belgium, and **Frank Sommen**. *Integration in superspace via distributions and some applications*.

In this talk, we approach integration over general domains and surfaces in superspace by means of distribution theory. This definition is inspired by Hörmander's formula, which is a simple layer integral that provides a distributional approach to classical real integration. We will define domains and surfaces in superspace in a purely analytical way by means of smooth even phase functions g . This allows to consider the Heaviside and Dirac distributions on such domains and surfaces respectively by means of their compositions with g expanded in a formal Taylor series. These compositions can be seen then as formal characteristic functions leading to simple definitions for the domain and surface integrals. This approach turns out to be well-defined and has some interesting applications. In particular, we will briefly show how to compute volumes and surface areas of some super-geometric bodies, i.e. a super-paraboloid and a super-hyperboloid. Moreover, some extensions of the Cauchy-Pompeiu formula for monogenic superfunctions and of the Bochner-Martinelli formula for holomorphic superfunctions will be presented. (Received July 25, 2018)