

Banach Lie-Poisson spaces related to W^* -algebras

Anatol Odziejewicz
Institute of Mathematics, University of Byalimstok
Byalimstok, Poland

Abstract

We introduce the notion of Banach Lie-Poisson space as a natural generalization of the finite dimensional linear Poisson structure. Some crucial theorems concerning the category of these objects will be presented. We show that the preduals of W^* -algebras form a subcategory in the category of Banach Lie-Poisson spaces. Examples and applications in the quantum physics and in the theory of integrable systems will be presented.