THE KGB (AND THE REST OF THE ALPHABET) FOR THE BRANE NEW SUPERWORLD

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ABSTRACT. **K**ostant's approach to the theory of group objects in the category of supermanifolds and their homogeneous spaces has proven very natural and fruitful in the modelling of the geometrodynamics of extended distributions of $\mathbb{Z}/2\mathbb{Z}$-graded charge in equibalance that generalises the usual lagrangean dynamics of a charged pointlike mass in external gravitational and electromagnetic fields (and has led, rather remarkably, to far-reaching insights into the measurable physics of gauge phenomena beyond the perturbative régime).

Upon reviewing the construction of the **G**reen(–Schwarz–...)-type super-σ-model of the said dynamics, I shall explain how the supersymmetric cohomology of the gauge field coupling to the dynamical charge through a 'topological' term in the action functor secretely encodes rich information on the geometry of the critical trajectories of the dynamics. The path leads through a hierarchy of geometrisations, put forward by the Speaker, of classes in the aforementioned cohomology that resemble closely those known from the study of **B**eilinson(–Deligne) cohomology of gauge fields in the non-$\mathbb{Z}/2\mathbb{Z}$-graded setting and can be thought of as (first) *concrete* models of supersymmetric higher geometry. Their discussion shall carry us congenially through the rest of the alphabet: From Cartan–Eilenberg to Chevalley–Eilenberg and back; from Rabin *et al.* to Tulczyjew *et al.*, de Azcárraga *et al.* and van Nieuwenhuizen *et al.* (judiciously circumnavigating Stasheff *et al.*); from Gawędzki to Hitchin and Murray and so on. We shall even stumble upon Lukierski's odd κ(-symmetry) along the way. By the end of the long day, we are bound to get super-curved and carry on, thus disposed, towards the phenomenological asymptote.