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Generic Chern Numbers for a Degenerate Multiplet: For a Characterization of Topological Orders YASUHIRO HATSUGAI, Department of Applied Physics, Univ. of Tokyo — Chern numbers for a multiplet which is a set of low lying states near the ground states are defined and an explicit expression is obtained in a gauge dependent form. We allow intrinsic degeneracies within the multiplet where a well-known standard procedure does not work. As an example, we give expressions for a spin Hall conductance for unitary superconductors with equal spin pairing. Generic topological orders will be treated in this manner particularly with nontrivial topological degeneracies.[1]. It can be useful for a characterizaton of some class of low dimensional quantum (spin) liquids with topological degeneracies.[2]

[1]Y. Hatsugai, J. Phys. Soc. Jpn, 2604, (2004), cond-mat/0405551
[2]Y. Hatsugai, preprint

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