

K. Schoutens: *Symmetries of spin-orbit coupled particles*

We explain the finite as well as infinite degeneracies in a particular system of spin-1/2 fermions with spin-orbit coupling in  $D=3$  spatial dimensions. We explicitly construct the complete set of symmetry operators, which span a non-compact  $SO(3,2)$  algebra. The physical spectrum only involves a particular, infinite, representation known as the singleton. In the flat branches ('3D Landau levels') the full singleton representation appears. The other branches display a finite degeneracy due to a truncation of the singleton representation.