N=2 primary superconformal structure of the classical SUSY W-algebra W(sl(n+1|n))

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1. Abstract

For a given pair of a simple finite basic Lie superalgebra and its odd nilpotent element, one can construct the corresponding N=1 SUSY vertex algebra called SUSY W-algebra. The structure of any SUSY W-algebra is quite complicated but SUSY W-algebra associated with sl(n+1|n) and its odd principal nilpotent f_{pr} is relatively simple. In particular, sl(n+1|n) is the only simple basic Lie superalgebra which admits principal sl(2|1)-embedding and it gives rise to an N=2 primary superconformal structure of the classical SUSY W-algebra for sl(n+1|n) and f_{pr}. In the first part of this talk, I will introduce the notions of quantum and classical SUSY W-algebra and their basic properties. In the second part, I will explain the recent result on N=2 primary superconformal superconformal structure of the classical SUSY W-algebra associated with sl(n+1|n) and f_{pr}. This presentation is mainly based on the joint work with Ragoucy and Song.