# Finite dimensional Jordan superalgebras, some classical problems.

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In 1905 Wedderburn proved that for all finite dimensional associative algebra A, there is an associative subalgebras S in A such that A=S+R, where R is the nilpotent radical of A. The decomposition before is called the Wedderburn principal theorem (WPT). Analogous of this theorem were proved for Lie algebras (Eugene), Jordan algebras (Albert, Penico, Askinuze) and alternative algebras (Schafer). It is well known that if WPT holds for an algebra A, then the second cohomology is trivial. A natural problem was determined when there is an analogous version of Wedderburn principal theorem for finite dimensional superalgebras. Alternative superalgebras over fields of characteristic zero were considered by Pisarenko, who proved that in general there isn't an analogous to Wedderburn Principal theorem for alternative superalgebras, moreover, he determined some conditions over the semisimple part such that WPT hold. We considered finite dimensional Jordan superalgebras over an algebraically closed field of zero characteristic. More specifically we considered the case when A is a finite dimensional Jordan superalgebra with solvable radical R such that R2 =0. To start we proved that is possible to reduce the problem to case when A/R is a simple Jordan superalgebra. Later we determine some conditions over the the irreducibles that are admisibles on R and we stablished when an analogous to WPT hold and calculate the second cohomology group for other cases.

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