1123-17-172 **Ian M Musson*** (musson@uwm.edu), Department of Mathematical Sciences, UW-Milwaukee, Milwaukee, WI 53211. *Šapovalov elements and the Jantzen sum formula for contragredient Lie superalgebras.*

If $\mathfrak{g}$ is a contragredient Lie superalgebra and γ is a root of $\mathfrak{g}$, we prove the existence and uniqueness of Šapovalov elements for γ and give upper bounds on the degrees of their coefficients. Then we use Šapovalov elements to define some new highest weight modules. If X is a set of orthogonal isotropic roots and $\lambda \in \mathfrak{h}^*$ is such that $\lambda + \rho$ is orthogonal to all roots in X, we construct a highest weight module $M^X(\lambda)$ with character $\epsilon^\lambda p_X$. Here p_X is a partition function that counts partitions not involving roots in X. The main results are analogs of the Šapovalov determinant and the Jantzen sum formula for $M^X(\lambda)$ when $\mathfrak{g}$ has type A.

For the proof of the main results it is enough to study the behavior for certain relatively general highest weights. Using an equivalence of categories due to Cheng, Mazorchuk and Wang, the information we require is deduced from the behavior of the modules $M^X(\lambda)$ when $\mathfrak{g} = \mathfrak{gl}(2,1)$ or $\mathfrak{gl}(2,2)$. These low dimensional cases are studied in detail. (Received August 25, 2016)