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We say that two representations of a reductive group G are spectrally equivalent if the same irreducible representations appear in both of them. The semigroup of finite dimensional representations of G with tensor product and up to spectral equivalence is a rather complicated object. We show that the Grothendieck group of this semigroup is more tractable and give a description of it in terms of moment polytopes of representations. As a corollary, we get a proof of the Kazarnovskii theorem on the number of solutions in G of a system of equations consisting of matrix elements of representations. We also describe the asymptotic of highest weights appearing in tensor powers of a representation of G . The main tool used is the PRV theorem. These results are in the spirit of theory of semigroups of integral points and Newton-Okounkov bodies. For the most part this is a joint work with A. G. Khovanskii. (Received March 15, 2010)