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**Calin Ioan Chindris\*** ([cchindri@umich.edu](mailto:cchindri@umich.edu)), University of Michigan, Department of Mathematics, East Hall, 525 East University Avenue, Ann Arbor, MI 48109. *Quivers, long exact sequences and Horn type inequalities.*

Horn's conjecture gives a recursive method for finding the eigenvalues of a sum of two Hermitian matrices in terms of the eigenvalues of the summands. Other problems that have the exact same solution as this eigenvalue problem concern: the existence of short exact sequences of finite abelian  $p$ -groups and the non-vanishing of the Littlewood-Richardson coefficients. We use methods from quiver invariant theory to find necessary and sufficient inequalities for the existence of long exact sequences of finite abelian  $p$ -groups. We also relate this result with some generalized Littlewood-Richardson coefficients and eigenvalues of Hermitian matrices satisfying some (in)equalities. (Received February 19, 2005)