

Title:

Detection Algorithms for Future MIMO Wireless Communication Systems

Abstract:

Multiple input multiple output (MIMO) systems are an integral part of various wireless standards such as 4G, WiMax, 802.11n, HSPA+. They also seem indispensable for future wireless systems such as 5G etc. Driven by the need for higher data rates, the number of transmit-receive antenna pairs in future MIMO wireless systems may increase upto hundreds. However, conventional detection schemes become increasingly infeasible, or inadequate, as the number of antenna pairs increase. Since the reliability of receivers depends critically on the detection algorithm used, there is a need for better detection algorithms. The currently known algorithms can be grouped into three categories viz. neighborhood search algorithms, lattice reduction based algorithms and sparse recovery based algorithms. Although some of these algorithms have reasonably low complexities, their reliability performance needs further improvement. In this talk we will discuss these algorithms and also look for ways to improve their performance so that the need for future wireless systems can be met.