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(54) **APPARATUS AND METHODS FOR TRANSMISSION AND RECEPTION OF DATA IN MULTI-ANTENNA SYSTEMS**

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(57) **ABSTRACT**

Methods and apparatus adapted to address asymmetric conditions in a multi-antenna system. In one embodiment, the multi-antenna system comprises a wireless (e.g., 3G cellular) multiple-input, multiple-output (MIMO) system, and the methods and apparatus efficiently utilize transmitter and receiver resources based at least in part on a detected asymmetric condition. If an asymmetric condition is detected by the transmitter on any given data stream, the transmitter can decide to utilize only a subset of the available resources for that stream. Accordingly, the signal processing resources for that data stream are adapted to mirror the reduction in resources that are necessary for transmission. The transmitter signals the receiver that it will only be using a subset of the resources available, and the receiver adapts its operation according to the signaling data it receives. The multi-antenna system can therefore reduce power consumption as well as increasing spectral efficiency on the network.