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(71) Applicant *(for all designated States except US)*: **QUALCOMM INCORPORATED** [US/US]; 5775 Morehouse Drive, San Diego, CA 92121 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **MANTRAVADI, Ashok** [IN/US]; 7855 Avenida Navidad, San Diego, CA 92122 (US). **AGRAWAL, Avneesh** [IN/US]; 7891 Doug Hill, San Diego, CA 92127 (US).

(74) Agents: **WADSWORTH, Philip, R.** et al.; 5775 Morehouse Drive, San Diego, CA 92121 (US).

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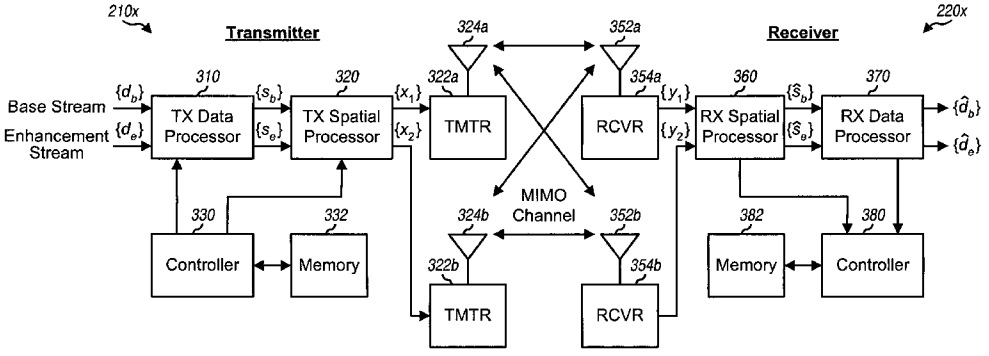
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[Continued on next page]

(54) Title: HIERARCHICAL CODING WITH MULTIPLE ANTENNAS IN A WIRELESS COMMUNICATION SYSTEM



(57) Abstract: Techniques are provided for performing hierarchical coding in a multi-antenna communication system (e.g., a SIMO, MISO, or MIMO system). At a transmitter, a base stream and an enhancement stream are coded and modulated separately to obtain first and second data symbol streams, respectively. The first data symbol stream is processed in accordance with a first spatial processing scheme (e.g., a transmit diversity or a spatial multiplexing scheme) to obtain a first set of symbol substreams. The second data symbol stream is processed in accordance with a second spatial processing scheme (e.g., transmit diversity or spatial multiplexing) to obtain a second set of symbol substreams. The first set of symbol substreams is combined (e.g., using time division multiplexing or superposition) with the second set of symbol substreams to obtain multiple transmit symbol streams for transmission from multiple transmit antennas. A receiver performs complementary processing to recover the base stream and enhancement stream.

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