CLAIMS

1. A method comprising: sending, from an access point of a wireless network to a first station of a plurality of stations of the wireless network, a packet including a preamble, a data portion, and trigger data, the preamble preceding the data portion in the packet, the data portion preceding the trigger data in the packet, the trigger data configured to cause the first station to perform a channel measurement in response to receiving the packet, wherein the trigger data comprises non-precoded, omni-directional data; receiving, at the access point from the first station and after sending the packet, a request to join a beamforming group of the wireless network; and receiving, at the access point from the first station, feedback information that includes channel state information associated with the trigger data.

2. The method of claim 1, wherein the trigger data is distinct from the preamble, and wherein the first station joins the beamforming group based on the request.

3. The method of claim 1, wherein the feedback information is received from the first station without polling individual stations of the plurality of stations for feedback information, wherein the access point sends beamformed data to one or more of the plurality of stations, and wherein at least one of the plurality of stations comprises a mobile station configured to receive the beamformed data from the access point.

4. The method of claim 1, wherein the trigger data includes at least one omni-directional long training field (LTF).

5. The method of claim 1, wherein the packet comprises a multi-user multiple-input-multiple-output (MU-MIMO) packet.

6. The method of claim 1, wherein the packet comprises a clear to transmit (CTX) packet or a beacon frame.

7. The method of claim 1, wherein the preamble of the packet indicates that the trigger data is included in the packet, and wherein the preamble comprises a high efficiency Wi-Fi (HEW) preamble.

8. The method of claim 1, wherein the packet identifies at least one station of the plurality of stations, identifies the access point as a source of the packet, or both.

9. The method of claim 1, further comprising sending at least one multi-user multiple-input multiple-output (MU-MIMO) packet to the plurality of stations, wherein the at least one MU-MIMO packet includes data for a particular station of the plurality of stations, wherein the data for the particular station is precoded based on particular feedback information received from the particular station.

10. The method of claim 5, wherein the wireless network operates in accordance with an Institute of Electrical and Electronics Engineers (IEEE) 802.11 high efficiency Wi-Fi (HEW) standard, and wherein the packet comprises a HEW MU-MIMO packet.

11. The method of claim 1, wherein the feedback information is included in a multi-user multiple-input-multiple-output (MU-MIMO) packet or an orthogonal frequency-division multiple access (OFDMA) packet that includes second feedback information from at least one other station of the plurality of stations.

12. An apparatus comprising: a transmitter of an access point of a wireless network, the transmitter configured to send a packet to a plurality of stations of the wireless network, the access point and each station of the plurality of stations configured to communicate using a beamforming technique, the packet including a preamble, a data portion, and trigger data, the preamble preceding the data portion in the packet, the data portion preceding the trigger data in the packet, the trigger data configured to cause a first station of the plurality of stations to perform a channel measurement in response to receiving the packet, wherein the trigger data comprises non-precoded, omni-directional data; and a receiver of the access point configured to: receive, from the first station and after sending the packet, a request to join a beamforming group of the wireless network; and receive, from the first station, feedback information that includes channel state information associated with the trigger data.

13. The apparatus of claim 12, wherein the transmitter is further configured to send precoded data to the first station, wherein the precoded data is precoded based on the channel state information, and wherein the feedback information is received from the first station without polling individual stations of the plurality of stations for feedback information.

14. The method of claim 1, wherein the trigger data is associated with causing a second station of the plurality of stations to bypass channel measurement operations associated with the packet based on an indication that additional data for the second station is not included in a packet subsequent to the packet.

15. The method of claim 1, further comprising: sending a second packet from the access point of a wireless network to the plurality of stations of the wireless network, the second packet including second trigger data that is associated with causing the first station of the plurality of stations to perform a second channel measurement associated with the second packet, wherein the second trigger data includes non-precoded data; and receiving second feedback information from the first station in response to sending the second packet.

16. The method of claim 15, wherein the second feedback information comprises a differential feedback report indicating a change in the channel measurement based on the feedback information.

17. The method of claim 1, further comprising: precoding data based on the channel state information; and sending the precoded data from the access point to the first station.

18. The apparatus of claim 12, wherein the packet corresponds to a multi-user multiple-input multiple-output (MU-MIMO) data packet that includes precoded data for a subset of stations of the plurality of stations, and wherein the first station is not an intended recipient of the precoded data.

19. The apparatus of claim 12, wherein the trigger data is not located in the preamble of the packet, and wherein the trigger data is not beamformed.

20. The apparatus of claim 12, wherein the channel state information is measured by the first station at a time prior to a time of receipt of the request to join the beamforming group.

21. The apparatus of claim 12, wherein the preamble comprises a high efficiency Wi-Fi (HEW) preamble.

22. An apparatus comprising: a receiver of a station of a wireless network, the receiver configured to receive a packet from an access point of the wireless network, the station and the access point configured to communicate using a beamforming technique, the packet including a preamble and trigger data, wherein the trigger data comprises non-precoded, omni-directional data; a processor of the station, the processor configured to initiate performance of a channel measurement in response to receipt of the trigger data at the receiver; and a transmitter of the station, the transmitter configured to, after receipt of the packet and after performance of the channel measurement: send a request to join a beamforming group associated with the access point; and send feedback information to the access point after sending the request, the feedback information generated based on the channel measurement, wherein the channel measurement is performed in response to receiving the trigger data and at a time that is prior to a time of sending the request to join the beamforming group.

23. The apparatus of claim 22, wherein the transmitter is further configured to send second feedback information to the access point, wherein the second feedback information corresponds to a differential feedback report, and wherein the differential feedback report is sent in response to determining that the access point has data to send to the station based on a second packet and determining that a change in the channel measurement from a prior channel measurement is greater than or equal to a threshold.

24. The apparatus of claim 22, wherein the packet comprises a multi-user multiple-input-multiple-output (MU-MIMO) packet, a clear to transmit (CTX) packet or a beacon frame, and wherein the packet does not include a null data packet frame or null data packet announcement frame.

25. A method comprising: receiving a packet at a station of a wireless network from an access point of the wireless network, the packet including a preamble and trigger data, the trigger data associated with causing the station to perform a channel measurement, wherein the trigger data comprises non-precoded, omni-directional data; sending, from the station to the access point, a request to join a beamforming group associated with the access point; and sending, from the station to the access point, feedback information generated based on the channel measurement performed in response to receiving the packet and at a time that is prior to a time of sending the request to join the beamforming group, wherein the channel measurement is initiated based on the trigger data.

26. The method of claim 25, further comprising joining the beamforming group after sending the request, wherein a data portion of the packet precedes the trigger data in the packet.

27. The method of claim 25, further comprising performing the channel measurement based on an indication that additional data for the station is included in a subsequent packet.

28. The method of claim 25, wherein the feedback information is included in multi-user multiple-input-multiple-output (MU-MIMO) packet, an orthogonal frequency-division multiple access (OFDMA) packet, or a power-save (PS) poll frame.

29. The method of claim 1, further comprising: generating a precoding matrix based on the feedback information; precoding at least a portion of a multiple-input-multiple-output (MU-MIMO) packet based on the precoding matrix; and sending the MU-MIMO packet to the plurality of stations of the wireless network.