We claim:

1. A vibratory meter (5) including a multi-channel flow tube (130), the vibratory meter (5) comprising:

a meter electronics (20); and

a meter assembly (10) communicatively coupled to the meter electronics (20), the meter assembly (10) comprising:

the multi-channel flow tube (130, 330, 430, 530) comprising two or more fluid channels (132, 332, 432, 532) surrounded by a tube wall (134, 334, 434, 534), wherein the two or more fluid channels (132, 332, 432, 532) and tube wall (134, 334, 434, 534) comprise a single integral structure; and

a driver (180) coupled to the multi-channel flow tube (130, 330, 430, 530), the driver (180) being configured to vibrate the multi-channel flow tube (130, 330, 430, 530);

wherein the two or more fluid channels (132, 332, 432, 532) and tube wall (134, 334, 434, 534) are configured to deform in a same direction as the single integral structure in response to a drive signal applied to the driver (180); and

wherein the meter electronics (20) is configured to:

measure a density of the fluid with the multi-channel flow tube (130, 330, 430, 530) based on a frequency of the vibration of the multi-channel flow tube (130, 330, 430, 530);

determine a gas void fraction using the measured density using a predetermined correlation between the density measurement and the gas void fraction; and

compensate a flow rate measurement using the gas void fraction.

2. The vibratory meter (5) of claim 1, wherein the two or more fluid channels (132) are defined by one or more channel divisions (136) having a planar shape extending along a longitudinal length of the multi-channel flow tube (130).

3. The vibratory meter (5) of claim 1, wherein the two or more fluid channels (432, 532) are defined by channel tubes (436, 536) affixed to each other and extending along a longitudinal length of the multi-channel flow tube (430, 530).

4. The vibratory meter (5) of one of any of the foregoing claims 1 through 3, wherein the two or more fluid channels (132, 332, 432, 532) are substantially parallel with each other.

5. The vibratory meter (5) of claim 1, wherein each of the two or more fluid channels (132, 332, 432, 532) have at least one of a rectangular cross section and a circular cross section.

6. The vibratory meter (5) of one of any of the foregoing claims 1 through 5, wherein the meter electronics (20) being configured to compensate the flow rate measurement comprises the meter electronics (20) being configured to:

determine a flow rate error from a predetermined correlation between the flow rate error and the gas void fraction; and

compensate the flow rate measurement using the flow rate error.

7. A method of measuring a fluid with a multi-channel flow tube, the method comprising:

separating the fluid into two or more fluid channels in a multi-channel flow tube surrounded by a tube wall, wherein the two or more fluid channels and tube wall comprise a single integral structure;

applying a drive signal to a driver coupled to the multi-channel flow tube, the driver being configured to vibrate the multi-channel flow tube;

deforming the two or more fluid channels and the tube wall in a same direction as the single integral structure in response to the drive signal applied to the driver;

measuring a deflection of the multi-channel flow tube with a sensor attached to the multi-channel flow tube;

measuring a density of the fluid with the multi-channel flow tube;

determining a gas void fraction using the measured density using a predetermined correlation between the density measurement and the gas void fraction; and

compensating a flow rate measurement using the gas void fraction.

8. The method of claim 7, wherein separating the fluid into two or more fluid channels comprises separating a gas component of the fluid into one of the two or more fluid channels.

9. The method of one of claim 7 or claim 8, wherein separating the fluid into two or more fluid channels comprises filling a cross section of one of the two or more fluid channels with a gas component of the fluid.

10. The method of one of any of the foregoing claims 7 through 9, wherein applying the drive signal to the driver coupled to the multi-channel flow tube comprises applying the drive signal to the driver coupled to the tube wall, wherein the two or more fluid channels are defined by one or more channel divisions having a planar shape extending along a longitudinal length of the multi-channel flow tube.

11. The method of one of any of the foregoing claims 7 through 10**,** wherein applying the drive signal to the driver coupled to the multi-channel flow tube comprises applying the drive signal to the driver coupled to the tube wall, wherein the two or more fluid channels are defined by channel tubes affixed to each other and extending along a longitudinal length of the multi-channel flow tube.

12. The method of one of any of the foregoing claims 7 through 11, wherein compensating the flow rate measurement comprises:

determining a flow rate error from a predetermined correlation between the flow rate error and the gas void fraction; and

compensating the flow rate measurement using the flow rate error.