CLAIMS

The invention claimed is:

1. A method comprising:

sending a signal from an uphole location to a downhole tool located in a wellbore, wherein the signal comprises at least one event selected from the group consisting of a magnetic wellbore projectile, an acoustic pulse, and a pressure change;

taking measurements with a sensor coupled to the downhole tool, wherein the sensor is at least one selected from the group consisting of a magnetic sensor, an acoustic sensor, and a pressure sensor;

identifying the signal based on at least one of the measurements greater than an adaptive threshold value; and

actuating the downhole tool from a first configuration to a second configuration upon identification of the signal.

2. The method of claim 1, wherein the adaptive threshold value (T_i) is a function (f) of a present baseline value (B_i) for the measurements and the present baseline value (B_i) is a function (g) of a present measurement (m_i) and one or more previous measurements (m_{i-1}, …, m_{i-n}), where n is a number of the one or more previous measurements, according to

$T_i = f(B_i) = f(g(m_i, m_{i-1},\ldots,m_{i-n}))$.

3. The method of claim 2, wherein $f(B_i) = \alpha + B_i$ where α is an offset factor.

4. The method of claim 2, wherein $f(B_i) = \beta * B_i$, where β is a shift factor.

5. The method of claim 1, wherein the adaptive threshold value (T_i) is a function (f) of a present baseline value (B_i) for the measurements and a function (h) of previous adaptive threshold values, according to $T_i = f(B_i) + h(T_{i-1,} T_{i-2,\ldots,} T_{i-n})$.

6. The method of claim 5, wherein $f(B_i) = \alpha + B_i$ where α is an offset factor.

7. The method of claim 5, wherein $f(B_i) = \beta * B_i$, where β is a shift factor.

8. The method of claim 1 further comprising:

delaying taking the measurements with the sensor until after the downhole tool is in the wellbore.

9. The method of claim 1 further comprising:

delaying taking the measurements with the sensor until after the downhole tool has been placed in a final location within the wellbore.

10. The method of claim 1, wherein the signal comprises a plurality of the events in a pattern.

11. A well system comprising:

a downhole tool located in a wellbore and comprising a sensor coupled to a controller, the sensor being selected from the group consisting of a magnetic sensor, an acoustic sensor, and a pressure sensor, and the controller including a non-transitory, tangible, computer-readable storage medium containing a program of instructions that, when executed, cause the well system to perform a method comprising:

sending a signal from an uphole location to a downhole tool located in a wellbore, wherein the signal comprises at least one event selected from the group consisting of a magnetic wellbore projectile, an acoustic pulse, and a pressure change;

taking measurements with a sensor coupled to the downhole tool, wherein the sensor is at least one selected from the group consisting of a magnetic sensor, an acoustic sensor, and a pressure sensor;

identifying the signal based on at least one of the measurements greater than an adaptive threshold value; and

actuating the downhole tool from a first configuration to a second configuration upon identification of the signal.

12. The well system of claim 11, wherein the adaptive threshold value (T_i) is a function (f) a present baseline value (B_i) for the measurements and the present baseline value (B_i) is a function (g) of a present measurement (m_i) and one or more previous measurements (m_{i-1}, …, m_{i-n}), where n is a number of the one or more previous measurements, according to

$$T_i = f(B_i) = f(g(m_i, m_{i-1},\ldots,m_{i-n})).$$

13. The well system of claim 12, wherein $f(B_i) = \alpha + B_i$ where α is a predetermined factor.

14. The well system of claim 12, wherein $f(B_i) = \beta + B_i$ where β is a predetermined factor.

15. The well system of claim 11, wherein the adaptive threshold value (T_i) is a function (f) of a present baseline value (B_i) for the measurements and a function (h) of previous adaptive threshold values, according to $T_i = f(B_i) + h(T_{i-1}, T_{i-2,\ldots}, T_{i-n})$.

16. The well system of claim 15, wherein $f(B_i) = \alpha + B_i$ where α is an offset factor.

17. The well system of claim 15, wherein $f(B_i) = \beta * B_i$, where β is a shift factor.

18. The well system of claim 11, wherein the method further comprises:

delaying taking the measurements with the sensor until after the downhole tool is in the wellbore.

19. The well system of claim 11, wherein the method further comprises:

delaying taking the measurements with the sensor until after the downhole tool has been placed in a final location within the wellbore.

20. A non-transitory, tangible, computer-readable storage medium containing a program of instructions that, when executed, cause a well system to perform a method comprising:

sending a signal from an uphole location to a downhole tool located in a wellbore, wherein the signal comprises at least one event selected from the group consisting of a magnetic wellbore projectile, an acoustic pulse, and a pressure change;

taking measurements with a sensor coupled to the downhole tool, wherein the sensor is at least one selected from the group consisting of a magnetic sensor, an acoustic sensor, and a pressure sensor;

identifying the signal based on at least one of the measurements greater than an adaptive threshold value; and

actuating the downhole tool from a first configuration to a second configuration upon identification of the signal.