What is Claimed is:

1. A resonant circuit, comprising:

a signal loop having an input, an output, and a closed loop frequency response, the signal loop comprising:

a primary resonator having a primary frequency response, and a primary Q-factor;

at least one adjustable resonator having an adjustable frequency and a secondary Q-factor, the primary Q-factor being greater than the secondary Q-factor by a factor of about 10 or more; and

an adjustable scaling block that applies a gain factor; and

a controller connected to the at least one adjustable resonator and the adjustable scaling block, the controller comprising instructions to adjust the closed loop frequency response toward a desired closed loop frequency response by controlling the adjustable frequency of the at least one adjustable resonator and the gain factor of the adjustable scaling block.

2. The resonant circuit of claim 1, wherein the primary Q-factor is greater than the secondary Q-factor by a factor of about 100 or more.

3. The resonant circuit of claim 1, wherein the primary frequency response of the primary resonator is within a predetermined error factor of the desired frequency response, and the controller controls the closed loop frequency response within the predetermined error factor of the primary resonator.

4. The resonant circuit of claim 1, wherein the primary resonator is a fixed resonator or a resonator that is tunable in frequency.

5. The resonant circuit of claim 1, wherein the primary resonator is an antenna, and the antenna comprises the input of the signal loop.

6. The resonant circuit of claim 1, wherein the signal loop further comprises a phase shifter that applies an adjustable delay factor, the controller being connected to control the phase shifter.

7. The resonant circuit of claim 1, further comprising a plurality of adjustable resonators connected in series or in parallel.

8. The resonant circuit of claim 1, wherein the primary resonator is an electrical resonator, an electromagnetic resonator, a mechanical resonator, or a resonator based on material properties.

9. The resonant circuit of claim 1, further comprising a plurality of primary resonators connected in parallel or in series within the signal loop.

10. The resonant circuit of claim 1, wherein the signal loop comprises:

a first component comprising the primary resonator; and

a second component comprising the at least one adjustable resonator;

wherein the first component is fabricated from a first material, and the second component is fabricated from a second material that is different than the first material.

11. The resonant circuit of claim 10, wherein the first component and the second component are fabricated as separate and distinct components.

12. A method of modifying a closed loop frequency response of a resonant circuit, the resonant circuit comprising a signal loop having an input, an output, a primary resonator that has a primary frequency response, at least one adjustable resonator having an adjustable frequency, and an adjustable scaling block having a gain factor, the method comprising the steps of:

controlling the frequency of the at least one adjustable resonator and the gain factor of the adjustable scaling block to adjust the closed loop frequency response of the resonant circuit toward a desired closed loop frequency response, wherein a Q-factor of the primary resonator is greater than a Q-factor of the at least one adjustable resonator by a factor of about 10 or more.

13. The method of claim 12, wherein the Q-factor of the primary resonator is greater than the Q-factor of the at least one adjustable resonator by a factor of about 100 or more.

14. The method of claim 12, further comprising the step of adjusting the primary frequency response of the primary resonator.

15. The method of claim 12, wherein the primary resonator is an antenna, and the antenna comprises the input of the signal loop.

16. The method of claim 12, wherein the signal loop further comprises a phase shifter, and wherein adjusting the closed loop frequency response further comprises adjusting the phase of the phase shifter.

17. The method of claim 12, further comprising a plurality of adjustable resonators connected in series or in parallel.

18. The method of claim 12, wherein the primary resonator is an electrical resonator, an electromagnetic resonator, a mechanical resonator, or a resonator based on material properties.

19. The method of claim 12, further comprising a plurality of primary resonators connected in parallel or in series within the signal loop.

20. The method of claim 12, wherein the signal loop comprises:

a first component comprising the primary resonator; and

a second component comprising the at least one adjustable resonator;

wherein the first component is fabricated from a first material, and the second component is fabricated from a second material that is different than the first material.

21. The method of claim 20, wherein the first component and the second component are fabricated as separate and distinct components.