

CLAIMS

What is claimed is:

1. A method of tracking a desired frequency in an acoustophoretic system comprising
5 adjusting the resonant frequency of the acoustophoretic system based on the minimum reactance of the system or X_{min} .
2. A method of determining the type of particles or secondary fluid in a primary fluid in an acoustic standing wave system comprising dispersing particles or a secondary or
10 tertiary fluid in a primary fluid and utilizing the reactance of the acoustic standing wave to characterize the particles or secondary fluid or tertiary fluid in the primary fluid.
3. A method for controlling an acoustic transducer, comprising:
determining minimum or maximum reactance frequency of the transducer; and
15 providing a power signal to the acoustic transducer at the minimum or maximum reactance frequency.
4. A method for determining an operating setpoint of an acoustic system that includes an acoustic transducer and an acoustic chamber, comprising:
20 determining a reactance value for at least some of a range of frequencies, such that a minimum reactance value is determined for the range of frequencies; and
applying the drive signal to the acoustic transducer at a frequency associated with the minimum reactance value.
- 25 5. The method according to claim 4, further comprising:
identifying a subset of frequencies in the range of frequencies, the frequency associated with the minimum reactance value being located in the subset; and
determining a new frequency within the subset associated with the minimum reactance value; and
30 applying the drive signal to the acoustic transducer at the new frequency.