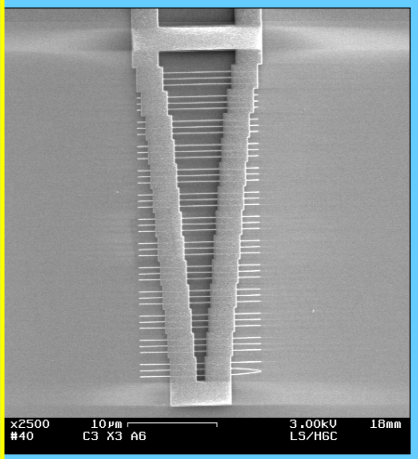
Nanomechanical Oscillators

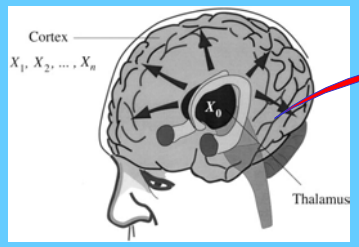
Dr. Brian H. Houston

Compact Ultralow Power Electronics

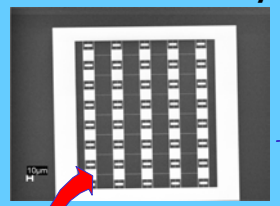


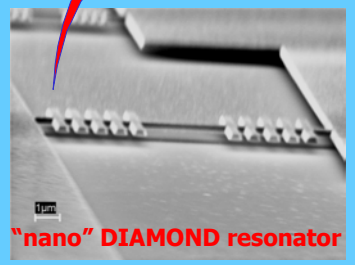
- Electromechanical oscillators will enable the next major leap in integration and thus size reduction.
- Much lower power communication and signal processing equipment (e.g. radios, etc.)
- Saving the warfighter significant battery weight and space.
- Device shown is fabricated from NRL diamond films.

Artificial Brains for Intelligent Autonomous Vehicles



Nanoresonator array

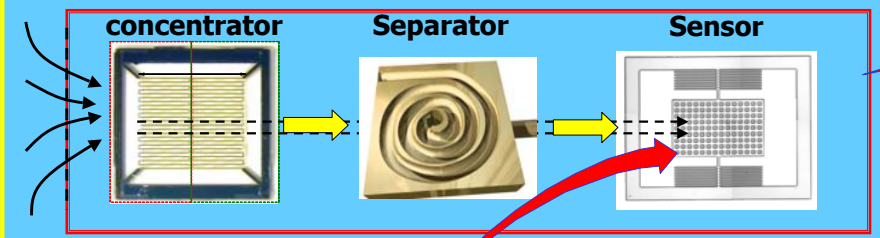




"nano" DIAMOND resonator

- Coupled arrays of oscillators will be used instead of neurons.
- ~ 1 billion nanoresonators
- Artificial brains will surpass computers in many ways.
- Self-aware autonomous vehicles.

Compact Low Power Highly Sensitive Chem/Bio Detection



- A high performance resonator will be used to detect explosives as well as chemical and biological agents with sensitivity that is better than large conventional power-hungry systems. The intent is to provide small, low power sensing systems that are extremely portable.