

Microtechnology



Pacific Northwest
National Laboratory

Operated by Battelle for the
U.S. Department of Energy

Environmental Technology Directorate

Developing and demonstrating innovative, process-intensive equipment and systems for energy, space exploration, national defense, and chemicals production.

Clients

U.S. Department of Energy

- Energy Efficiency and Renewable Energy
- Industrial Technologies Program

U.S. Department of Defense

- Army Communication-Electronics Command
- Defense Advanced Research Projects Agency
- Office of Naval Research

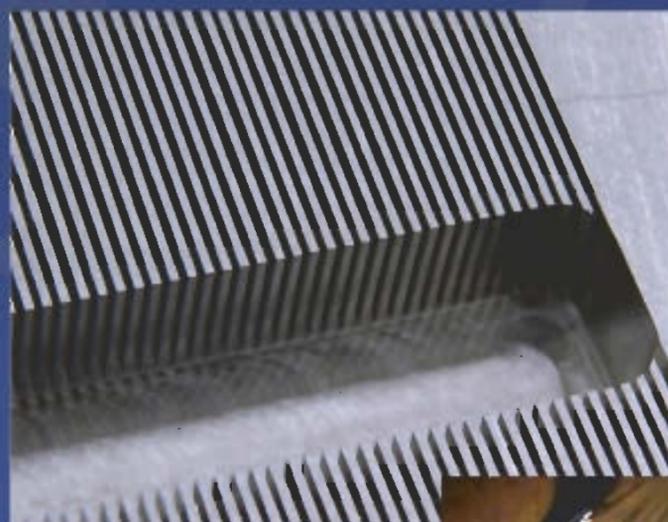
National Aeronautics and Space Administration (NASA)

Microproducts Breakthrough Institute with Oregon State University

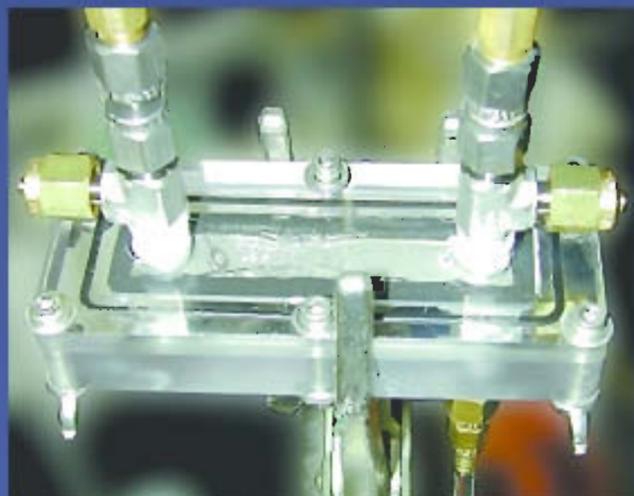
Oregon Nanoscience and Technologies Institute (ONAMI) with Oregon University System

Industry

- Portable Power
- Chemical
- Energy Conservation



Our advancements in microchannel architecture and process miniaturization in the mid-1990s helped create the field of microtechnology, which greatly increased heat and mass transfer rates, resulting in a new class of devices for chemical and thermal systems.



This vapor-liquid separator, the size of a pocket tape recorder, has extremely narrow channels that cause forces such as surface tension to dominate instead of gravity. When a two-phase fluid flows through the device, it separates the liquid into one stream and the gas into another without relying on gravity.



The Milli-Watt System Fuel Processor converts methanol into hydrogen and carbon dioxide. The system contains the units of a commercial-sized hydrogen plant—but approximately a billion times smaller in capacity and size.

Microchemical and thermal processing technology, incorporating expertise in

- heat and mass transfer
- catalysis and reaction engineering
- separations
- surface and interfacial science
- process engineering

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