

Tech Valley patents show creativity in energy and environment fields

2004 and early 2005 have been banner times for patents in the energy/environmental field for New York's Tech Valley. In fact, more than 50 granted patents and published patent applications accrued to Tech Valley companies during this period.

Plug Power Inc. of Latham is the assignee for 21 patents granted in 2004 through early 2005, along with having 11 patent applications published through the same period. Plug manufactures fuel-cell systems for use at residences and as backup power generators in commercial applications. Plug also manufactures purification systems designed to supply hydrogen for use in fuel cell-powered automobiles.

One of Plug's recent fuel-cell patents, U.S. Patent No. 6,686,078, provides a method to maintain the "inputs" to fuel cells in their proper proportions to prevent the flooding of fuel cells. Another Plug patent, U.S. Patent No. 6,774,637, features a method of electronically performing a quality check on fuel cells at various points during the manufacturing process.

Patent Application Nos. 2004/0058209, 2004/0058208, and 2004/0028979 all relate to Plug's hydrogen-purification products. The first of these patent applications includes the coordination of a fuel-cell processor and a hydrogen separator or purifier. One application for this invention is a stationary power plant which provides a refueling station for hydrogen-powered vehicles.

U.S. Patent No. 6,699,021 is owned by **MTI Micro Fuel Cells Inc.**, of Albany. This invention allows a fuel pump of a fuel cell to be self-regulating by utilizing carbon dioxide, which is a waste product of the the fuel cell, as a regulating mechanism.

MTI Micro, a subsidiary of **Mechanical Technology Inc.** of Latham, develops and manufactures micro-fuel cells for portable devices. These fuel cells are intended for use in powering hand-held electronic devices such as personal digital assistants and smart phones.

Another of MTI Micro's 13 issued patents from 2004 and early 2005 is U.S. Patent No. 6,794,071, which provides a direct-oxidation fuel cell which is capable of a rapidly increased power output level to meet the demands of typical portable electronic devices.

Rupprecht and Patashnick Co. Inc. of East Greenbush, now part of **Thermo Electron Corp.**, had two issued patents and two published patent applications during 2004. The

company works in the areas of ambient air quality, diesel particulate exhaust, power plant emissions and catalyst research.

U.S. Patent No. 6,769,316 describes a gas-sampling cartridge which is self sealing whenever an access door to the monitoring apparatus is opened.

Environment One Corp. was awarded U.S. Patent No. 6,761,067, which describes a sensor which is particularly useful for determining the level of liquid in a sewer grinder pump. E/One is a Niskayuna manufacturer of products for the disposal of household sanitary waste and detection systems for large power generators.

General Electric Co. of Schenectady and Niskayuna is the assignee of several energy- and environment-related patents granted during 2004. GE was awarded U.S. Patent No. 6,818,134 for a method for manufacturing fuel cells and articles made with fuel cells. GE's U.S. Patent No. 6,808,639 describes a method and an apparatus for reducing the amount of hydrogen sulfide in the effluent of a water heater.

Superpower Inc. of Schenectady is the listed owner of U.S. Patent Nos. 6,854,276 and 6,809,910. Superpower, a subsidiary of **Intermagnetics General Corp.** of Latham, develops electric power components utilizing superconductive materials. Patent '910 describes a method and apparatus which uses a magnetic field to take a superconductor from a superconducting state to a normal resistive state. A superconducting device utilizing this invention is particularly useful in a current-limiting application. Patent '276 provides a method and apparatus to cryogenically cool superconductor devices, particularly those used in high-voltage electric power applications.

U.S. Patent No. 6,798,083 relates to fuel cells for vehicles. The main application of this invention is in large vehicles such as transit buses. The inventor of this patent, Otward Mueller, is a co-founder of **MTech Laboratories**, of Ballston Spa, which focuses on technology associated with magnetic resonance imaging. Mueller was previously a senior research engineer at GE while his co-founder, Michael J. Hennessey was formerly chief scientist at Intermagnetics.

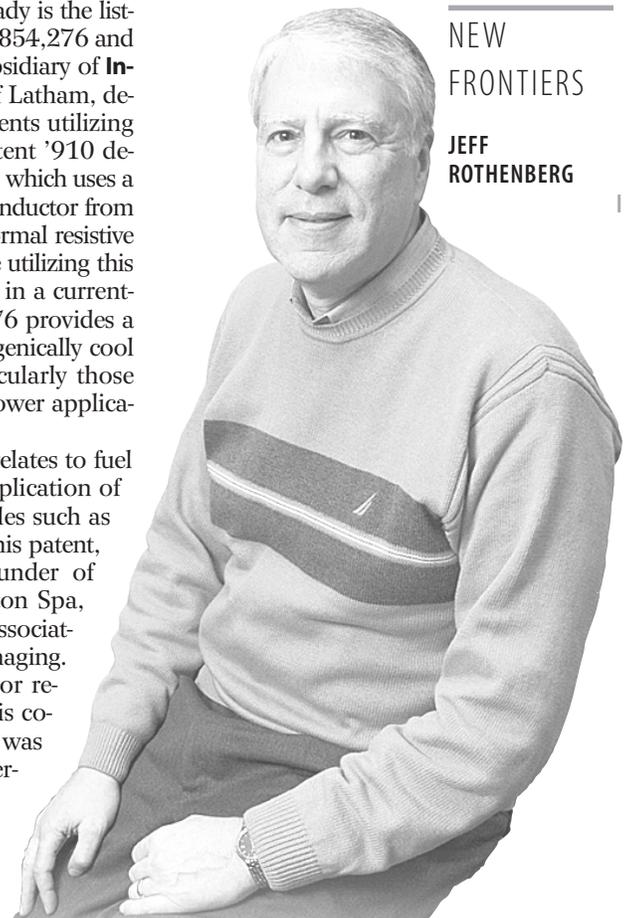
U.S. Patent No. 6,868,795 is assigned to **Blasch Precision Ceramics Inc.**, of Albany, and

The Babcock & Wilcox Co. of New Orleans. The invention relates to a bubble-cap assembly for use in fluidized bed boilers, furnaces or reactors. The circulating fluid bed technology allows a wide range of solid fuels to be burned such as coal, waste coal, agricultural wastes and other fuels.

Rensselaer Polytechnic Institute's U.S. Patent Application Publication No. US 2004/0246596 describes a lens adapted to focus solar radiation, reducing the energy lost in converting solar radiation into electricity.

The number of patents granted and patent applications published, along with the diversity of the inventions, provides a strong indicator of the creative talents of the inventors in Tech Valley.

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