

## DWV INNOVATION AWARD WINNERS SELECTED INVESTIGATIONS ON FUEL CELL HEATING APPLIANCES AND FUEL INFRASTRUCTURE WIN

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**Dr. Jens Mathiak from Castrop-Rauxel (Germany) is the winner of the DWV Innovation Award for Hydrogen and Fuel Cells for 2003. His thesis is titled Process Analysis of the distributed home energy supply based on PEM Fuel Cells and was made at the University Duisburg-Essen with Prof. Angelika Heinzl as scientific head.**

The jury found also the thesis of Dr. Rolf Stromberger very valuable so that the board decided to honor it with a special award; it has the title Building a Filling Station Infrastructure for the Supply of cars with Hydrogen as Alternative Fuel, under consideration of technical, economical, and ecological aspects. This thesis was made at the Technical University of Vienna with support by BMW.

Both awards will be presented at the annual meeting of DWV members which will be held on 14. May in Leipzig. The two laureates will inform the public about their work.

Jens Mathiak's thesis is focused on a comparison of different hydrogen generation processes. A novel method to characterize fuel cells is presented and applied. The objective of the investigation is to find the most effective gas process. The latter is realized practically and characterized experimentally.

The thesis contributes to fuel cell research generally and in particular to the field of hydrogen generation for home fuel cells. It provides an universally applicable basis for further investigations on distributed hydrogen generation for use with PEM fuel cells. Another result is that gas processors of a few kW can be realized, have an efficiency comparable to that of major plants, and can be operated dynamically.

Small fuel cell based heating appliances for homes will be among the first applications in which hydrogen and fuel cells are used in marketable products which provide both ecological and economical advantages to the customers. The energy system will thus become more distributed, with important effects on the whole business. The jury found the thesis to be an important contribution to this development.

Rolf Stromberger's thesis investigates ways to establish an infrastructure in Germany which provides hydrogen as fuel for cars (production, distribution, dispense). He shows that this can be done in an acceptable time. Under the assumption of liquid hydrogen as basis the almost complete adaptation of all conventional filling stations could be performed in about 25 years. If the car park grows fast enough it would be feasible even in 15 years.

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But not only economical objectives (low costs) play a role, there are other ones as well, especially the reduction of greenhouse gas emissions. Quite different optimum paths can be found depending on which criterion is chosen. Some of the criteria even contradict each other; so the creation of a hydrogen infrastructure can only be done following an optimized mean path. This requires corresponding boundary conditions such as creation and harmonization of global guidelines and rules for storage, transport, and use of hydrogen.

The creation of a comprehensive and economical infrastructure is an important condition for the introduction of hydrogen fuel for road traffic. Since there are many ways to this end all contributions are useful that provide more clarity. This is why the thesis was considered to be important.

The competition for the DWV Innovation Award for 2004 is open, and applications will be accepted until the end of this year.

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