



V A B I L O na predavanje,
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**MAGNETIC HEATING, REFRIGERATION
AND POWER CONVERSION**

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A review on magnetic heating, magnetic refrigeration and magnetic power conversion systems - working with materials showing the magneto caloric effect - is presented. This review is mainly based on studies initiated by the Swiss Federal Office of Energy on each of these three technologies. Possible applications are listed and the best suited two systems for each related magneto-thermal technology evaluated.

Magnetic heat pumps with ground heat sources operating for floor heating systems were found to be an ideal application. The predicted coefficient of performance (*COP*) for such an application exceeds characteristic values of conventional heat pumps working at equal heating power and temperatures of the source and sink.

In the area of refrigeration technologies the household refrigerator without a freezing compartment and the central chilling unit - which may be of large size - have been found to show very good prospects for a successful application. The *COP* values of such large-scale systems are very high.

The main objective of the lecture is show different applications of heat utilization where magnetic power conversion may present a good alternative to conventional power conversion technologies

Prof. Dr. Peter W. Egolf is a heating and air conditioning engineer and a physicist ETHZ (Eidgenössische Technische Hochschule Zürich/Swiss Federal Institute of Technology in Zurich). He made his physics diploma in dynamical meteorology and his PhD in low temperature physics studying surface waves on superfluid helium II. He worked in several industrial Ra&D laboratories (Trox-Hesco, Sulzer, etc.) in fluid dynamics and thermodynamics. He won eight scientific prizes, e.g. the Swiss Technology Awards 1996 and 2006. Recently he initiated a new Working Party of the International Institute of Refrigeration (IIR-IIR), namely on Magnetic Refrigeration (at Room Temperature), and he is currently serving as its President. He deposited eleven patents and published more than 300 scientific articles. You find more information on his biography published in the newest versions of Who's Who in the World, Who's Who in Science and Engineering and Who's Who in America.

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