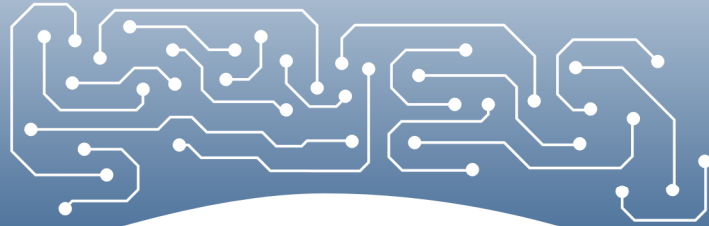


# Invitation to attend a technical lecture

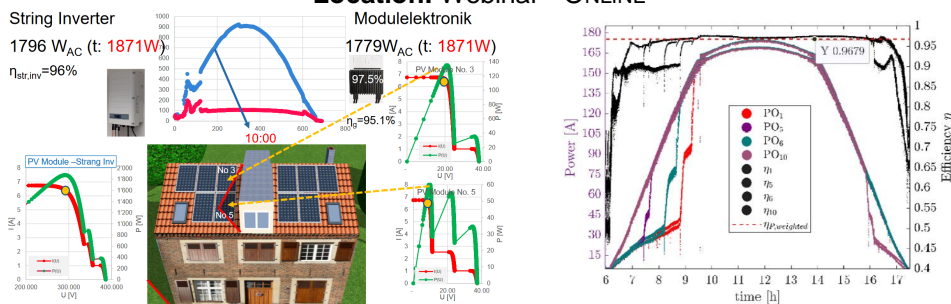


## Performance comparison: solar module-level power electronics vs. conventional string inverters

**Franz BAUMGARTNER**, Prof. Dr. rer. nat. Dip. Ing.  
ZHAW Zurich University of Applied Sciences, School of Engineering

**Date: Tuesday, December 1<sup>st</sup>, 2020, Time: 2 PM - 3PM CEST (UTC+2)**

**Location: Webinar - ONLINE**



**Registration:** To register for the event please visit the IEEE registration page <https://events.vtools.ieee.org/event/register/241076> or contact [markus.makoschitz@ait.ac.at](mailto:markus.makoschitz@ait.ac.at).

### Abstract

Commercially available PV module-level based power electronics currently exhibits an increasing market share with global revenues of over 2 B\$. Companies are promising performance advantages of up to 20 % due to partial shading of individual modules and optimal control of the DC/DC converters per solar module, compared to a single operating point of a conventional string inverter. Measurements of such commercial PV module-level based power optimizers (each one fed by a different power supply from an individual DC source which is emulating an individually shaded solar module) performed at ZHAW laboratories, revealed a significant deviation between the predicted performance improvement and observed values. The measurement data and analyses obtained at ZHAW, together with a comparison of several publications on this topic, provide a helpful overview for practical applications. Finally, PROS and CONS of both PV system setups (module-based vs string inverter based) are summarized. This also includes parameters such lifetime of the system components, service cost and popular web-based illustrations of the aforementioned performance values of such systems.



**Franz Baumgartner** is head and program director of the bachelor's degree in Energy and Environmental Engineering at the ZHAW and head of the Photovoltaic Systems Research Group at the Institute of Energy Systems at the SoE. His research activities in photovoltaics over the last three decades have included semiconductor electronics for thin-film solar cells, the development of special optoelectronic test systems for industrial manufacturers of tandem modules, mobile LED light sources for performance testing in the field and the measurement and analysis of the long-term performance of PV modules and inverters, as well as various developments of components for the cost-dominant BOS components of solar systems, new mounting systems for solar modules on steel cables and the integration of photovoltaic power into the power grid. For more than two decades, he has been active as Topic Organiser in the PV System area of the European PV Conferences and in several industries and advisory bodies in Switzerland, such as Elecsuisse, Swisssolar and the Swiss Federal Office of Energy.

This event is supported by AIT Austrian Institute of Technology GmbH and Graz University of Technology.

If you are looking for more information about IEEE Austria IAS/PELS/IES Joint Chapter, please visit our webpage: <http://www.ieee-austria.org/index.php/chapters/41-ias-pels-ies>

For further information please contact JC chair [markus.makoschitz@ait.ac.at](mailto:markus.makoschitz@ait.ac.at) or vice-chair [s.leitner@tugraz.at](mailto:s.leitner@tugraz.at)