

Ulrike Willer  
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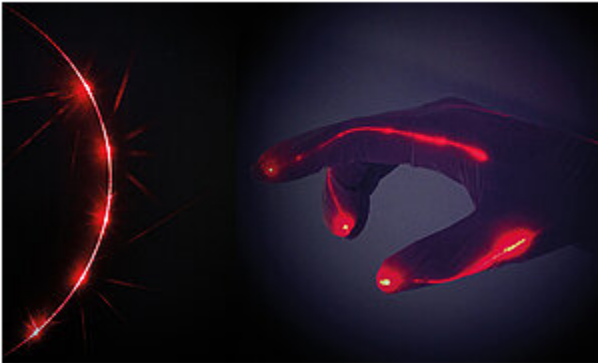
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# Fraunhofer HHI

A brief introduction

# What we do

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## FiberLab

Defined changes of material's properties by applying femtosecond laser pulses on various materials (like glasses, metal oxides, polymers, etc. ...), are opening new perspectives for sensing applications.

[Read more](#)



## Surface Processing

Femtosecond laser structuring is a convenient technology to generate well-defined surfaces on virtually any solid material ranging from metals to glasses and polymers. The extremely short timescale of the laser pulse guarantees the bulk material to be unaffected from the surface treatment. Examples for femtosecond laser processed surfaces are deep black metals, increased emissivity, superhydrophilic metals or heterogeneous catalysts and electrodes with strongly enlarged specific surface areas.

[Read more](#)



## Energy Storage Sensor Technology

The group Energy Storage Sensor Technology develops (fiber-optic) sensor systems for the identification and characterization of state-relevant processes in energy storage systems. In addition, battery storage systems and their safety features are tested according to standard specifications.

[Read more](#)

# Example

## Sustainable energy

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- Decentralized provision of energy
- Solar cells and battery storage
- 2nd-life/b-grade batteries
- Safe drinking water

# VoltaViewAfrica Powerhouse

Clean energy, mobility, and safe drinking water as a service

Prof. Dr. Wolfgang Schade & Team



# Our Mission

*Providing less expensive and for all people affordable access to clean drinking water and electricity by container based mini-grid technology developed by Fraunhofer HHI and Clausthal University of Technology/Germany*



# Clean Energy

*It is estimated that about 80% of the population in the rural areas of Sub-Saharan Africa have no access to electricity.*

*The availability of electricity is the most important prerequisite for local development.*

*VoltaViewAfrica Powerhouse plants enable e-mobility in rural areas on land and on water, reducing operation costs by up to 60% and causing zero emissions.*





# Safe Drinking Water



*Access to safe drinking water is a basic need and a human right.*

*Contaminated water causes diseases such as diarrhea, cholera, dysentery, typhoid and polio.*

*Out of 2 billion people worldwide who drink water obtained from contaminated sources approximately 485.000 die due to diarrhea.*

*About 10% of the world's diseases caused by the denied access to safe water. Today about 785 million people worldwide do not have access to safe drinking water.*

# VoltaViewAfrica Powerhouse Concept



# VoltaViewAfrica – The Powerhouse Concept



*VoltaViewAfrica Powerhouse Clean Drinking Water Production*   *VoltaMove2Go Powerpacks*

*With its Powerhouse and its VoltaMove2Go powerpacks VoltaViewAfrica provides a clean and easy-to-use substitute for diesel generators and power-grids. Sustainable power supply and clean drinking water can now be made available in remote rural areas.*



# VoltaViewAfrica Powerhouse Concept



<https://www.youtube.com/watch?v=e5OZZSw6z84>

# VoltaViewAfrica – Business Case since 2023



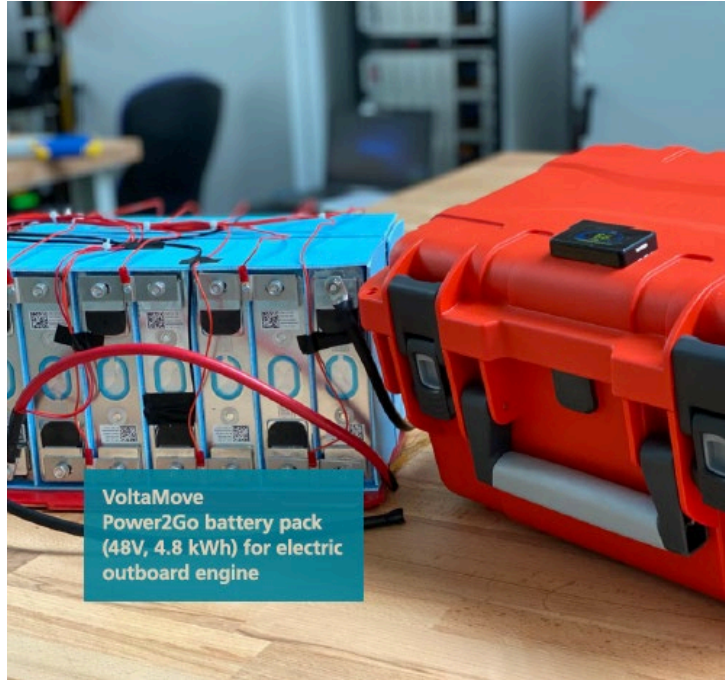
Balingho village, The Gambia

The VoltaViewAfrica Powerhouse plant is based on a modular mini-container design and consists of at least two interconnected 10-foot container modules.

In one container the electricity generated by solar power is battery stored and converted to 230 VAC by a hybrid inverter. In a second container module, the safe drinking water is produced with sediment filtering, UV-C light treatment and finally nano-filtration.

Mobile and portable battery cases – VoltaMove2Go – provide a clean and easy-to-use substitute for diesel generators as well as power grids.

# Clustered Expertise Behind



*VoltaMove GmbH, a Fraunhofer HHI start-up in Germany, aims to develop and produce low voltage direct current (LVDC) battery packs for versatile use in small delivery vans, motorcycles, boats, or for home use, encompassing both hardware and software*





# VoltaMove2Go - powerpack



VoltaMove Power2Go  
battery pack (48V, 4.8 kWh)  
for the electric outboard engine

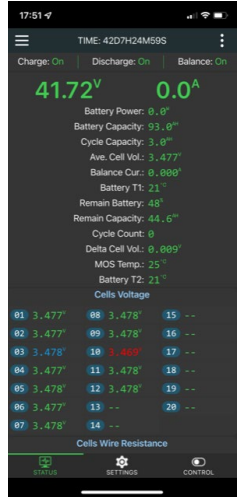
## VoltaMove2Go power packs

- 14 NMC lithium-ion cells in series
- Active BMS, programmable via App, with CAN and RS 484
- 4.8 kWh storage capacity
- 4.000 charge/discharge cycles with < 80% capacity drop
- Voltage range: 39-59V
- Permanent discharge current 100 A (1C)
- Short-term peak current 200 A (2C)
- Charging time to 100% 5 hours at 20 A
- 19 kg weight
- water protected housing
- specially developed passive safety concept

# VoltaMove2Go – powerpack-light

... take electricity simply home and recharge at the powerhouse

Via Bluetooth/WLAN  
auslesen/überwachen

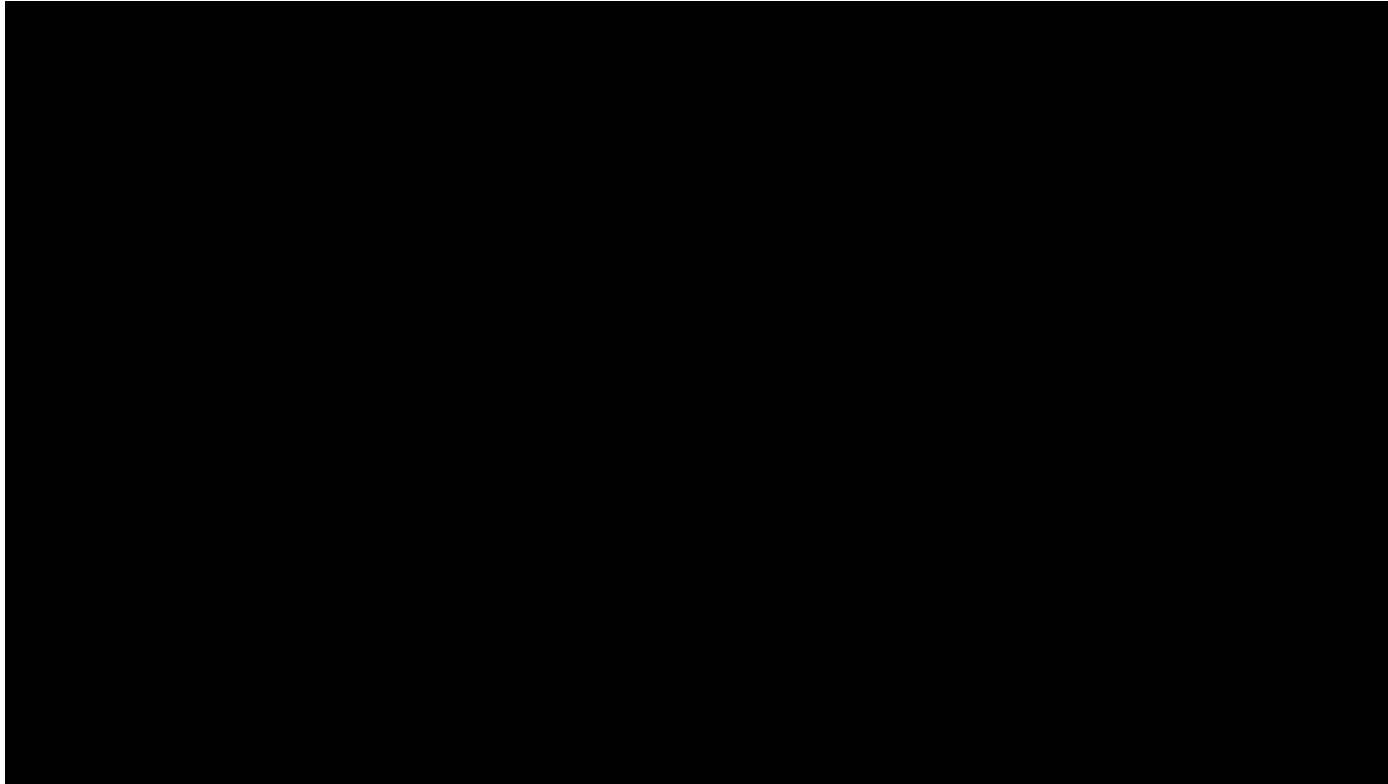


VM-7S- 2.4

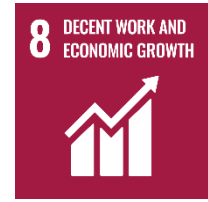
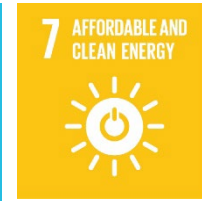
|                      |                             |
|----------------------|-----------------------------|
| Power                | 2.4 kWh                     |
| Output options       | 230 V/1000 W<br>24 V<br>USB |
| Charging time (1/4C) | 4 h                         |
| Weight               | 12.5 kg                     |
| Dimensions           | 30x30x12 cm <sup>3</sup>    |



# Technologie „Made in Germany“ - aus Goslar



# Our Goals



... provide all people in developing countries with affordable access to clean drinking water and electricity and thereby create the basic prerequisites for economic development ...

Active in Tanzania, Gambia, Senegal DR Congo since 2023 with the ***VoltaViewAfrica-Powerhouse*** concept

This Project is supported by the German Federal Ministry for Economic Affairs and Climate Action as part of the Renewable Energy Solutions Programme of the German Energy Solutions Initiative.

Supported by:



Implemented by:



on the basis of a decision  
by the German Bundestag