

APRIL 27, 28-29 | HYBRID EVENT | BERLIN, GERMANY



# 4TH ANNUAL NRMM ELECTRIFICATION FORUM 2022

## SPEAKERS

**TATIANA MINAV**  
ASSISTANT PROFESSOR



TAMPERE UNIVERSITY

**BHUPESH AGRAWAL**  
GROUP MANAGER,  
ELECTRIFICATION



JOHN DEERE

**PATRICK HILDENBRAND**  
GLOBAL PRODUCT MANAGER



PUTZMEISTER GROUP

TBA  
TBA



PARKER HANNIFIN

**ALBERT THOMAS HAUGG**  
HEAD OF NEW DEVELOPMENTS  
AKG GROUP



AKG

**JURGEN KELLER**  
PRODUCT MANAGER FOR PORT  
MACHINES



SANY EUROPE GMBH

**JOSEF GRAUBMANN**  
DIRECTOR BUSINESS UNIT  
THERMAL MANAGEMENT  
SYSTEMS



YMER TECHNOLOGIES

**OLAF HERMANN**

VICE PRESIDENT SALES



ARADEX

**DR ROLAND SCHMETZ**

PROFESSOR OF DRIVETRAIN  
ENGINEERING,  
PARTICULARLY POWER  
ELECTRONICS



RHINE-WAAL UNIVERSITY

**JUAN TAPIA**  
PROFESOR



UNIVERSITY OF CONCEPCION,  
CHILE

**DR.-ING. MARIUS BAUER**  
EXIST-PROJEKT ESCO (CEO)  
BATTERY SYSTEMS  
ENGINEERING  
ELEKTROCHEMISCHE  
AKKUMULATOREN (ECA)  
ZSW



**DR. MARTIN INDERELST**  
SENIOR EXPERT  
MANAGER EXCAVATOR  
TECHNOLOGY



XCMG

**NICO MUENCH**

DIRECTOR FOR BUSINESS  
DEVELOPMENT & SALES



WEBASTO

**MATTHIEU DESBOIS-RENAUDIN**  
CEO/ CO-FOUNDER



WATTALPS

**MAARTEN KELDER**  
CTO



CLEANTRON

**THOMAS VAN HECKE**

VICE PRESIDENT DIGITAL AND  
PRODUCT LINES (ACTING)



SANDVIK MINING SOLUTIONS

**RAHUL MADHAVAN**

DIRECTOR – EBUS FLEET  
STRATEGY & NEW BUSINESS  
INCUBATION

HITACHI

Reliable solutions

HITACHI EUROPE LTD.

**EIRILL MEHAMMER**  
RESEARCH SCIENTIST



SINTEF

**MIKKO PILHATIE**  
RESEARCH TEAM LEADER



VTT

**PETER ZONNEVELD**  
VP RENEWABLE ROAD  
TRANSPORT EUR & APAC



NESTE

**ALASTAIR HAYFIELD**

SENIOR RESEARCH DIRECTOR –  
OFF-HIGHWAY



INTERACT ANALYSIS

**CHRISTIAN RATHBERGER**  
SENIOR MANAGER VTM & KULI  
SOFTWARE



MAGNA

**MARIA KARLSSON**  
HEAD OF SUSTAINABILITY  
BUSINESS AREA PROJECT  
DEVELOPMENT



PEAB

**STEFANO FIORATI**

ZERO EMISSION & ADVANCED  
DRIVETRAIN MANAGER



CNH INDUSTRIAL

# SPONSORS 2022

4TH ANNUAL NRMM ELECTRIFICATION FORUM 2022  
APRIL 27, 28-29 | HYBRID EVENT | BERLIN, GERMANY



## GOLD SPONSORS



Helios Technologies is a global leader in highly engineered motion control and electronic controls technology for diverse end markets, including construction, material handling, agriculture, energy, recreational vehicles, marine, health and wellness. Helios sells its products to customers in over 90 countries around the world. Its strategy for growth is to be the leading provider in niche markets, with premier products and solutions through innovative product development and acquisition. The company has paid a cash dividend to its shareholders every quarter since becoming a public company in 1997. To see their vast range of solutions over 4 companies, please visit: <https://www.heliostechnologies.com/>



Enovation Controls consistently meets and beats specification standards that are rarely matched. Our four-stage product development process provides targeted product definition, identifies risks, rapidly prototypes concepts and extensively tests for validation. ISO 9001 certified since 1998, we take pride in our world-class manufacturing methods which allow us to deliver specialized, more reliable solutions. We build tougher. We test harder. And we're ready for your most challenging applications. To see there amazing products & solutions please visit: <https://www.enovationcontrols.com/>



Sun Hydraulics is a leading designer and manufacturer of high-performance screw-in hydraulic cartridge valves and manifolds that control force, speed and motion as integral components in fluid power systems. From its inception, Sun has been committed to being the leader in its field. We offer products that advance our customers' businesses, improving the safety and performance of the machinery in which they are used. We invest in equipment and processes to ensure our operations are efficient and profitable. We provide a safe and pleasant working environment for our employees, which allows them to be more productive and helps them achieve life satisfaction. We keep the explicit and implicit promises we make to our customers, so they will remain our customers. Our brand and our reputation, we know, are products of our commitment to these basic principles. Visit: <https://www.sunhydraulics.com/> to see there great products to enable better hydraulics

## SILVER SPONSORS



Parker has defined its unique contribution to the world through a new purpose statement: Enabling Engineering Breakthroughs that Lead to a Better Tomorrow. As the global leader in motion and control technologies, Parker plays a pivotal role in applications that have a positive impact on the world.

With a broad motion and control technology portfolio, engaged teams working across the globe and long-standing customer partnerships, Parker is fortunately positioned to help improve the lives of many and make the world a better place. Addressing these opportunities is more than an ambition, it's why Parker is in business. The ability to help team members thrive, protect the environment and support local communities is viewed as a key measure of the company's success. See there solutions at: <https://www.parker.com>



At Webasto, we are convinced that the future belongs to electric mobility. That is why we are using our automotive technology expertise to drive forward the development of future-proof batteries for passenger cars and commercial vehicles. With our unique modular design concept for standardized as well as individualized battery systems, we can meet a wide range of customer requirements in an outstanding quality. Durability, safety and performance are a matter of course for us and guarantee sustainable solutions for clean mobility. To learn more visit: <https://www.webasto-group.com/en/>



Cleantron is an independent, family owned, company and a high quality Battery producer with specialized engineering skills. Cleantron develops Batteries with the clear objective to produce the developed Battery designs. Alternatively, (in some cases e.g. in the Automotive Sector) we are willing to produce "Build-to-Print" Batteries. This concerns then Battery Prototypes as well as Series Product for Automotive Niche applications (Motorsport, special LCV and Luxury). Cleantron works knowledge based, puts the customer requirements central and strives for long term business relationships with her customer. Visit them at: <https://www.cleantron.nl/>



Our company is presently developing and producing a wide range of quick release couplings, ranging from medium to ultra high pressures, single couplings, multi connections and casting solutions.

All Faster products are designed according to international standards. We strongly believe in continuous research for innovation. Our challenge is to increase our competitiveness by offering high quality products with agile production processes, while paying careful attention to the customer's needs. Today, Faster is a primary force for research, design and production of quick-release couplings for hydraulics. see there Hydraulic solutions at: <https://www.fastercouplings.com/>

## BRONZE SPONSORS



In today's automotive industry two key drivers for new developments are safety and efficiency. This is not only true for the vehicle as a whole, but can also be directly translated to most of its sub systems.

For thermal management systems safety means that all vehicle components (combustion engine, e-drive, battery...) can operate within their designated temperature ranges for all relevant vehicle operating points, driving cycles and ambient conditions. Efficiency means that this task is achieved with minimized energy effort. Adding passenger comfort as an important factor and also focusing on system cost minimization step by step reveals the complexity of modern cooling- and HVAC-system design. Visit them at: <https://kuli.magna.com/index.php?id=33>



Ymer Technology began our journey in 2005 with a simple idea – use collaborative processes, creative thinking and in-house production to create innovative and precision-tailored solutions for our customers.

A tall order – yet always worth it. Above all we're driven by the thrill of getting things just right and it seems to be working. Today, we're present in Europe, the USA and Asia and our skill set ranges from cooling and thermal management to hydraulic and lubrication systems.

As the scope of our business has grown, so has the importance of our work. Today, Ymer Technology plays a crucial part in the large-scale shift to the usage and generation of green energy – thus contributing to the realization of a more sustainable future. See there solutions at: <https://www.ymer.com/en/#welcome>



ARADEX has focused on the electrification and hybridization of commercial vehicles, construction machines and special ships. Our core competence lies in the development and production of converters (inverters), DC/DC converters and electric motors as well as holistic powertrain optimization. Our drive solutions are characterized in particular by perfect tuning, clever technology features and above-average efficiency. As part of a holistic drive train optimization, we can also arrange and optimally integrate other drive components such as batteries, fuel cells, gearboxes, etc. from our partner network. See more at: <https://www.aradex.de/en/>



As a leading supplier of customer-oriented solutions, AKG has acquired an internationally acclaimed reputation for producing reliable, high-quality radiators and heat exchangers.

The AKG Verwaltungsgesellschaft (holding company) in Hofgeismar directs the operation of the AKG Group, whose 2,500 employees produce over 2.5 million heat exchangers in various designs each year. To achieve this, 10 business units in Germany, France, Latvia, Turkey, India, USA, Brazil and China as well as 13 sales companies are in operation twenty-four hours per day. Development and production of high-performance heat exchangers and complete cooling modules for application in construction equipment, compressed air equipment, industrial coolers, agricultural and forestry equipment, vehicle construction, railroad vehicles, aviation, household appliances and special applications. Visit them at: <https://www.akg-group.com/>



With a 45 years cumulated experience in design, manufacturing and use of batteries, in mechanical, electrical and electronic systems, the three partners of WATTALPS form a very complementary team.

They also gather the cultures of three countries at the boarder of the Alps (France, Germany and Italy). They maintain a "crew" spirit to get the best of their competences and energies. The "ALPS" particle in the brand name WATTALPS refers to the mountaineering roots, symbol of will, commitment and solidarity to come through the hardest challenges. The objective is to build a cleaner industry with a great respect of citizen needs (pollution, noise). It is embodied by strong commitments like recycling 100% of the lithium batteries sold by the company. Visit them at: <https://www.wattalps.com/>

APRIL 28-29 | HYBRID EVENT | BERLIN, GERMANY



# 4TH ANNUAL NRMM ELECTRIFICATION VIRTUAL FORUM 2022

Throughout the entire continent of Europe, regulations and limits, regarding exhaust emissions are getting stricter. To be prepared for the future, more and more customers are asking for emission-free construction machines and equipment. Consumer requirements to be greener, are putting immense pressure on the off-highway machinery sector. Electrification is coming, no matter how long we try to postpone it, starting with electric vehicles to electric commercial buses and so on.

The future is electric! The future is green!

Electrification, in off-highway machinery, has been breaking new ground in the last few years, however, there are still many challenges for OEMs, that lie ahead in this sector.

Our conference will cover a wide range of topics: From hydraulic systems, battery technology, electric motors, fuel cells, thermal management, fast charging solutions, energy recovery, as well as supercapacitors for battery safety and reliability.

Be a part of the +100 delegates from the top companies, sharing their management strategies on the opportunities and challenges that come with the trend towards electrification. You will have several networking opportunities to mingle with the industry giants, through real time Q&A sessions, direct live messaging capabilities, and the interactive panel discussions.

Being a virtual event, allows for live online streaming, which will ensure knowledge can be shared and contacts can be made, even in these most challenging of times.

Our community is growing every year with more and more companies coming onboard! We look forward to seeing you at our 2022 rendition!

## WHO SHOULD ATTEND

### CTOS, VPS, DIRECTORS, HEADS, CHIEFS, MANAGERS OF:

Engineering  
Research and Development  
Electronic Systems  
Battery Technology  
Advanced Materials  
Advanced Technology  
Advanced Engineering  
Battery Systems  
Battery Supply  
Business Development  
Product Management  
Technical Sales  
Innovation  
Power  
Propulsion  
Electronic Development  
Control Systems  
Drive and Control Engineering  
Lead Procurement  
Technology utilization  
EV Power train  
Design and development  
Electro-Mobility  
Emerging Technologies

### FROM

Non-Road OEMs  
Construction  
Agricultural  
Mining  
Battery Manufacturers  
Material Suppliers  
Component Suppliers  
Battery Testing  
Equipment Providers  
Technology Providers  
Research Institutions  
Engineering Consultancies  
Technology Providers  
Software  
Automation  
Simulation  
Energy Storage Systems  
Hydraulics  
E-Motors

## FOR SPONSORS

Virtually meeting with key decision makers and qualified buyers during our exclusive conference with a great return on your investment. We offer a selection of sponsorship options that will increase the opportunity to develop new relationships during our events. Our sponsorship team can work with you to create an innovative sponsorship package tailored to the exact needs of you and your company which will suit your budget while maximizing your value.

Want to see our sponsorship packages?

Please contact [info@amistatgroup.com](mailto:info@amistatgroup.com) for more information

# SESSIONS

4TH ANNUAL NRMM ELECTRIFICATION FORUM 2022  
DAY ONE 27/04/2022 Central European Time (CET)



## Registration and Morning E-Coffee

08:00 - 08:45 CET

## Chairperson's Opening Remarks

08:45 - 09:00 CET

## The Global Off-highway Electrification Market: Trends and Opportunities

09:00 - 09:30 CET

- An overview of the global off-highway market and opportunity for growth in electrification
- Key components, pricing trends and future architecture
- In-depth analysis of the future for decarbonization in agriculture

ALASTAIR HAYFIELD  
SENIOR RESEARCH DIRECTOR – OFF-HIGHWAY  
INTERACT ANALYSIS

## Electric Drives in Mobile Machines

09:35 - 10:05 CET

- Bullet points TBA

SENIOR REPRESENTATIVE  
TBA  
PARKER HANNIFIN

## Networking & Refreshment Break

10:05 - 10:35 CET

## Energy savings for heavy-duty mobile machinery applications

10:35 - 11:05 CET

- Improvement of energy efficiency and reduction of energy consumption in heavy-duty mobile machinery
- Highlights and impact assessment from on-going research

TATIANA MINAV  
ASSISTANT PROFESSOR (TENURE TRUCK)  
TAMPERE UNIVERSITY

## Vehicle Electrification for High value Crop Segment in Emerging Markets

11:10 - 11:40 CET

- Technology perspective and customer expectations
- Innovative business models for emerging markets
- Infrastructure interventions for vehicle electrification

AGRAWAL BHUPESH  
GROUP MANAGER, ELECTRIFICATION  
JOHN DEERE

## How to Successfully Speed up Electrification for Construction Equipment Vehicles?

11:45 - 12:15 CET

- Trends & batteries technologies
- Difficulties in the electrification of construction machinery
- Future outlook in the development of battery systems
- Successful reference with our customers

NICO MUENCH  
DIRECTOR FOR BUSINESS DEVELOPMENT & SALES  
WEBASTO

## Networking & Lunch Break

12:15 - 13:30 CET

## Chilean Mining Industry. Challenges and Opportunities on Electrification

13:30 - 14:00 CET

- Green copper challenges
- Opportunities on mining electrification
- Electromobility under mining environment

JUAN A. TAPIA LADINO  
PROFESSOR/RESEARCHER  
UNIVERSITY OF CONCEPCION. CHILE

## High performance Batteries for high profitability Non-Road Mobile Machineries

14:05 - 14:35 CET

- Challenges to Make Electric NRMM Profitable
- Physics Behind Battery Profitability
- High Performance Battery Requirements

MATTHIEU DESBOIS-RENAUDIN  
CO-FOUNDER/CEO  
WATTALPS

## Networking & Coffee Break

14:35 - 15:05 CET

## On the road to Carbon Neutral: Electrification vs renewable Fuels vs New Technologies

15:05 - 15:35 CET

- How renewable fuels work and why they are sustainable
- Availability and forecast of renewable fuels and new technologies
- TCO impact and sustainability for renewable fuels
- Why we need both renewable fuels and electrification

PETER ZONNEVELD  
VP RENEWABLE ROAD TRANSPORT EUR & APAC  
NESTE

## NRMM electrification and alternative energies roadmap with case examples

15:40 - 16:10 CET

- Energy alternatives and requirements for system implementation
- Energy use and powertrains analysis
- Use case and viability analysis through two case studies
- 

MIKKO PILHATIE  
RESEARCH TEAM LEADER  
VTT TECHNICAL RESEARCH CENTER OF FINLAND

## Charging infrastructure – experiences from the maritime sector

16:15 - 16:45 CET

- Integrated energy systems
- Stresses on components
- New business models

EIRILL BACHMANN MEHAMMER  
RESEARCH SCIENTIST  
SINTEF ENERGY RESEARCH

## Panel Discussion: Where would renewable fuels do better than batteries? Why? Is it the same Vice Versa?

16:50 - 17:20 CET

PANELIST:  
MODERATED BY THE CONFERENCE CHAIR WITH THE COLLABORATION OF SPEAKERS FROM DAY ONE

## End of Day One – Closing word from the Chair

17:20 - 17:30 CET

## Drinks Reception & Networking

17:30 - 19:30 CET

# SESSIONS

4TH ANNUAL NRMM ELECTRIFICATION FORUM 2022  
DAY TWO 28/04/2022 Central European Time (CET)



**Morning Coffee**  
08:30 - 08:50 CET

**Chairperson's Opening Remarks**  
08:50 - 09:00 CET

**Unlocking EV transition and decarbonisation**  
09:00 - 09:30 CET

- Hitachi's Intelligent Fleet Decarbonisation (IFD) Portfolio
- A End to End Service Designed to Guide Fleet Operators Through an Fleet Electrification Optimisation Programme
- Delivering True Net-zero Operation & Reliable Financial Savings.

**RAHUL MADHAVAN**  
DIRECTOR – EBUS FLEET STRATEGY & NEW BUSINESS INCUBATION  
HITACHI EUROPE LTD.

**On the Road to Sophisticated Electrification. AKG's Solutions for Advanced Thermal Management of Batteries & Fuel Cells.**

09:35 - 10:05 CET

- Battery system thermal requirements
- Solutions for battery cooling/thermal management
  - for cell cooling
  - for providing cold
- Fuel cell thermal requirements
- Fuel cell cooling solutions
  - ionisation
  - H2 pre-warming

**ALBERT THOMAS HAUGG**  
HEAD OF NEW DEVELOPMENTS AKG GROUP  
AKG THERMOTECHNIK INTERNATIONAL GMBH

**Networking & Refreshment Break**

10:05 - 10:35 CET

**Case Study of a True End User, PEAB: Electrification from the perspective of a building's lifecycle**

10:35 - 11:05 CET

- How Sustainable Development & Electrification are Mastered at PEAB
- Trends & Demands in the Nordic Markets Regarding Electrification
- How Electrification Contributes to Sustainable Buildings from a Lifecycle Perspective

**MARIA KARLSSON**  
HEAD OF SUSTAINABILITY|BUSINESS AREA PROJECT DEVELOPMENT  
PEAB

**Putzmeister's Electrification Strategy for Sustainable Construction Sites**

11:10 - 11:40 CET

- A changing market environment
- Putzmeister's strategy
- Market launch of the iONTRON: The First Emission-Free Truck-Mounted Concrete Pump

**PATRICK HILDENBRAND**  
GLOBAL PRODUCT MANAGER  
PUTZMEISTER GROUP

**Thermal Management Challenges and Solutions in the Development of Off-Highway Machinery for a Global Customer Base**

11:45 - 12:15 CET

- Developing off-highway machinery for target regions from Iceland to Dubai causes very challenging requirements for vehicle thermal management.
- Ensuring customer satisfaction independent of the climate zones quickly leads to extensive test regimes and escalating development costs.
- Many dynamic use-profiles (e.g. excavator operation) cannot be tested at all in most climate chambers.
- Electrification further intensifies these topics due to increased system complexity and temperature sensitive components (e.g. battery packs)
- We present our joint approach combining incremental development steps, thermal management simulation and selective testing.
- The results are well-designed systems with optimized development efforts.

**CHRISTIAN RATHBERGER**  
SENIOR MANAGER VTM & KULI SOFTWARE  
MAGNA

**JOSEF GRAUBMANN**  
DIRECTOR BUSINESS UNIT THERMAL MANAGEMENT SYSTEMS  
YMER TECHNOLOGIES

**Networking & Lunch Break**

12:15 - 13:30 CET

**Suppression of Thermal runaway propagation in lithium-ion battery modules – Introduction to ESCO**

13:30 - 14:00 CET

- Introduction of ZSW and ESCO project
- Thermal runaway propagation (TRP)
- Best practice for implementing TRP suppression with ESCO pads

**DR. MARIUS BAUER, MBA**  
EXIST PROJECT ESCO, CEO  
ZENTRUM FÜR SONNENENERGIE UND WASSERSTOFF-FORSCHUNG BADEN-WÜRTTEMBERG (ZSW)

**Advanced 48V Battery Modularity for Non-road Applications**

14:05 - 14:35 CET

- Battery Modularity explained
- Scalable Battery Systems for Non-road OEM
- Modular Hybridisation of Non-road Applications
- Battery Swapping for Light Non-road Applications
- High Power Modular Systems for Non-road Applications

**MAARTEN KELDER**  
CTO  
CLEANTRON

**Networking & Coffee Break**

14:35 - 15:05 CET

**On Efficiency Improvements through Automation of Hydraulic Excavators**

15:05 - 15:35 CET

- Analysis and comparison of actuation principles
- Identification and evaluation of suitable Hydro-Electric Drive Train (HEDT) architectures for construction machinery
- Fuel saving potential of HEDT

**DR. MARTIN INDERLEST**  
SENIOR EXPERT/MANAGER – EXCAVATOR TECHNOLOGY  
XCMG

**Methodical approach and forecast of the savings potential when replacing diesel multiple units with battery-electric multiple units in the Niederrhein-Münsterland network**

15:40 - 16:10 CET

- Identification of savings potential
- System and energy analyses
- Utilisation and quantification of savings potential

**ROLAND SCHMETZ**  
PROF. DR.-ING. DIPL.-WIRT. ING.  
PROFESSOR OF DRIVETRAIN ENGINEERING PARTICULARLY POWER ELECTRONICS  
RHINE-WAAL UNIVERSITY OF APPLIED SCIENCES

**New Business Models & Digitalisation Electric Underground Mining Equipment**

16:15 - 16:45 CET

- Aftermarket services on battery electric equipment
- Telemetry on battery electric underground mining vehicles
- Remote Monitoring Service

**THOMAS VAN HECKE**  
VICE PRESIDENT DIGITAL & PRODUCT LINES  
SANDVIK MINING SOLUTIONS

**Panel Discussion: What are the challenges of bad thermal management on Battery lifetime and are there methods to achieve it by simulation? How to improve cabin comfort in Battery vehicles without compromising the Range and to achieve optimum energy management in BEV's?**

16:50 - 17:20 CET

**PANELIST:**  
MODERATED BY THE CONFERENCE CHAIR WITH THE COLLABORATION OF SPEAKERS FROM DAY ONE

**End of Day Two and Closing word from the Chair**

17:20 - 17:30 CET

**Drinks Reception & Networking**

17:30 - 19:30 CET

# SESSIONS

4TH ANNUAL NRMM ELECTRIFICATION FORUM 2022  
DAY THREE 29/04/2022 Central European Time (CET)



## Morning Coffee

08:30 - 08:50 CET

## Chairperson's Opening Remarks

08:50 - 09:00 CET

## Case Study: CNH Road to Zero Emissions

09:00 - 09:30 CET

- TBA

STEFANO FIORATI  
EMISSION & DRIVE-TRAIN MANAGER  
CNH INDUSTRIAL

## Using "Apps" in Inverters to Create Added-Values in Drivetrain

09:35 - 10:05 CET

- Story of Hydraulics: Improving Controllability of Force & Motion to Improve the Function, Performance and Operation of Machines
- How Electrification Offers us the same Potential
- Intelligent Central Control Systems
- The Division of Tasks Between the Drive & Vehicle Control unit
- Functions Supported using our "Apps in the Inverter"

OLAF HERMANN  
VICE PRESIDENT SALES  
ARADIX

## Networking & Refreshment Break

10:05 - 10:35 CET

## Development of Electric Drive-trains for NRMM: Case Study

10:35 - 11:05

- Electric Drive-Trains for NRMM: A Story of Success
- Electric Drive-Train Development - Lessons Learnt
- Adaptation of Common Drive-Trains to Electrified NRMM

SENIOR REPRESENTATIVE  
SENIOR REPRESENTATIVE

## A Case Study on: CO2 Free Powertrains

11:10 - 11:40

- The Non-Road Mobile Machinery sector needs to be decarbonised - How Can Powertrain Development help this
- What are the Multiple Technological Pathways to Achieving this?
- CO2 Free Powertrain RoadMap
- The impact that size, weight and CO2 emissions have on energy consumption

SENIOR REPRESENTATIVE  
SENIOR REPRESENTATIVE

## Fuel Cells in Heavy Duty Applications

11:45 - 12:15 CET

- Fuel Cells vs Typical Li-Ion Batteries - Why Change?
- Fuel Cell Technology
- Lifecycle of a Typical Fuel Cell for Off-Highway Application
- Challenges & Opportunities

RESERVED FOR SPONSOR  
RESERVED FOR SPONSOR

## Networking & Refreshment Break

12:15 - 12:45 CET

## A Data-Driven Approach to Electrifying your Fleet of Machinery: Case Study

12:50 - 13:20

- Areas to Consider;
  - Charging Infrastructure - Smart Charging
  - Charging Infrastructure - Capacity
  - Machine Learning Modelling
- Types of Electric Vehicles - BEV's (Battery Electric Vehicles), HEV (Hybrid Electric Vehicles) or FCEV (Fuel Cell Electric Vehicles)
- EV Range for Specific Sites

SENIOR REPRESENTATIVE  
SENIOR REPRESENTATIVE

## The Future for Fuel Cell Development

13:25 - 13:55 CET

- Current Fuel Cells & their uses
- Hydrogen Fuel Cells - Analysis of Viability for Different Applications
- Hydrogen Fuel Cells - Challenges Faces & Opportunities Gained
- What is the Future of Fuel Cell Technologies

RESERVED FOR SPONSOR  
RESERVED FOR SPONSOR

## End of Day Three & Closing word from the Chair

13:55 - 14:00

## FOR SPONSORS

Virtually meeting with key decision makers and qualified buyers during our exclusive conference with a great return on your investment. We offer a selection of sponsorship options that will increase the opportunity to develop new relationships during our events. Our sponsorship team can work with you to create an innovative sponsorship package tailored to the exact needs of you and your company which will suit your budget while maximizing your value.

Want to see our sponsorship packages?

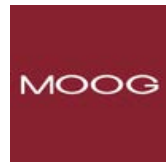
Please contact [info@amistatgroup.com](mailto:info@amistatgroup.com) for more information

# WHO ATTENDED

4TH ANNUAL NRMM ELECTRIFICATION FORUM 2022  
APRIL 27, 28-29 | HYBRID EVENT | BERLIN, GERMANY



Amistat  
GROUP



# PAST SPONSORS

4TH ANNUAL NRMM ELECTRIFICATION FORUM 2022  
APRIL 27, 28-29 | HYBRID EVENT | BERLIN, GERMANY



## FOR SPONSORS

Virtually meeting with key decision makers and qualified buyers during our exclusive conference with a great return on your investment. We offer a selection of sponsorship options that will increase the opportunity to develop new relationships during our events. Our sponsorship team can work with you to create an innovative sponsorship package tailored to the exact needs of you and your company which will suit your budget while maximizing your value.

Want to see our sponsorship packages?

Please contact [info@amistatgroup.com](mailto:info@amistatgroup.com) for more information



APRIL 27, 28-29 | HYBRID EVENT | BERLIN, GERMANY



# 4TH ANNUAL NRMM ELECTRIFICATION HYBRID FORUM 2022

Here at Amistat Group, we believe in the importance of shared knowledge and experience, especially now during these trying times of crisis where it is difficult for this knowledge and experience to be shared. This is why we have teamed up with Silicon Valley based Virtual platform company, Whova. To bring the experience and knowledge straight to you anywhere in the world, be that from the comfort of your home office or in your respected companies office. Our range of Virtual events will bring the industry leaders from the industry leading companies together to discuss the important topics affecting your industry, these industries ranging from: Machinery & Off Highway development to Pharmaceuticals & Manufacturing and everything in between.



## About Whova

Whova is an all-in-one event management solution that makes events modern and trendy, attracts and engages attendees effectively, and helps event organizers save time when managing event logistics. Whova's platform consists of an award-winning event app, easy online registration, powerful event marketing, and time-saving event management tools

## Whova for Attendees

Whova provides many benefits for you as an attendee. You receive all the information for the event in one convenient location including:

Agenda for the event, list of all the attendees at the event, direct links to the sessions, specific tabs for exhibitors and sponsors, direct messaging with all attendees, Speakers & exhibitors and a community tab where deep conversation with your peers can happen in a round table format. Attendees are able to network like never before by being able to do such things as: Scanning business cards and storing the contact information, as well as exchanging contact and company information digitally. Please see the link for more information on the benefits for attending a event held on Whova & also the benefits of using the mobile application <https://whova.com/faq/why-should-i-download-whova-app/>

## Benefits for sponsoring an event on Whova

Whova provides features for you to promote your business, product and service with customized logos, links, and streaming Options. Whilst it also supports advertisements with banners running on the app at all times. Have your advertisements visible to your attendees before, during and after the events, as well as having full analytics to see the amount of people viewing your virtual Booth or sponsor page and having direct contact with all the attendees and speakers at the event.

You can easily set up your own company descriptions, photos, coupons. At the same time, sponsors can set up video presentations, either by attaching a livestream link or uploading videos. What's more, sponsors can directly interact with attendees on the profile page with instant messages.

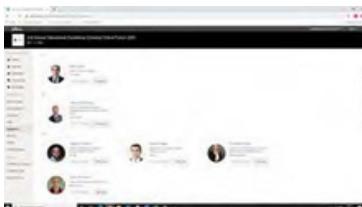
This direct engagement can give attendees a strong idea of the advantages of your company, as well as developing positive relationships that can lead to potential future business and partnerships.

See Link for a full description of Sponsoring an event on Whova and its benefits

<https://whova.com/blog/whovas-new-sponsor-center-helps-bring-great-roi-virtual-event-sponsors/>

## Using whova's Mobile Application & its benefits

Please see <https://whova.com/faq/why-should-i-download-whova-app/> for full details on the benefits of using the mobile application.



## FAQ AND IMPORTANT INFORMATION

AT AMISTAT GROUP WE WE ARE ALWAYS HAPPY AND HERE FOR YOU TO ANSWER ALL YOUR QUESTIONS. PLEASE TAKE A MINUTE TO SEE IF THE ANSWER TO YOUR QUESTION IS ALREADY HERE.

- **How could I secure a place at the event?** To secure your place, please email us back your registration form (last page of the agenda) with the attendance details.
- **Could we register for the conference if we do not know the name of the attending delegate(s)?**
- Yes! Please email us the registration form without the name(s) of the attendees in the names section of the registration form please use "TBA" (to be announced). The name(s) can be provided up to 1 week prior to the event.
- **Could I register online?** Sure! Please provide the full details on the online registration page and your contacts. We will contact you promptly to assist you on how to proceed with the registration.
- **How Could I pay?** We accept payment via bank transfer. We also accept VISA, Mastercard and Diners. Once we receive your registration, we confirm your place and send you the invoice with the payment options.
- **Would I get access to the presentation after the conference?** Yes, all presentations will be made available to participants approximately 7-10 days after the conference. You will receive an email from our operations to download the slides in PDF format.
- **Would the sessions be recorded? Would I get access to the presentation after the conference?**  
Yes, all sessions will be made available to participants approximately 7-10 days after the conference. You will receive an email from our operations to download the videos. They will also stay available approximately 3 months after the event dates so you could always come back to them and watch again.
- **What is the difference between 'Vendor' and 'End User'?**  
**Vendors** are companies who mainly provide software solutions whose aim of attending the conference is to find clients/business partners who are interested in their solutions while consultants are also attendees who attend the event to find new clients, while **End Users** are attendees who attend the conference to listen to the speaker's presentations and network to get new ideas for their companies.
- **Could you please clarify the difference between the three options tickets? End user/Vendor/Session recorded? And what is included in either online or recorded session?**  
**The End user & Vendor online passes include:**
  1. Real Time online attendance to the event, participating in all live session, participation to the QA session and virtual networking breaks, polls, surveys, panel discussion, group chats, networking and session recordings.
  2. All the session will be recorded, uploaded to the platform after the event (within 7-10 days post the event dates), you will also have access post-dates so you can always come back to them and rewatch for approximately 3 months after the event dates.
  3. The online attendance package includes the option to download the presentations.
  4. The online attendance package includes the option to download the recorded sessions.

**The session recorded package** will be just that, offline access post event date, with access to PDF Presentations and recorded video sessions.
- **Do we need to pay additional €899 for recording of sessions or is for those delegates who are unable to attend the forum but still would like access to the material and the discussions?**  
No, the delegates who are paid delegates but cannot make the live sessions will have full access to the on-demand service which will be set up one week after the event.
- **Is substitution possible?** In case you will not be able to attend the event after registration, it is possible to nominate a substitute to replace you for no extra cost. The name of the substitute to be provided 7 days prior to the event.
- **What is the time zone of the event?** The time zone of our events is **CET** (Central European Time) unless stated otherwise.

# REGISTRATION FORM

## BOOKING LINE:

Please send your completed registration form by email to:  
Jessica Whitmore  
jessica@electrification-nrmm.com  
T: +420 216 216 676



## REGISTRATION PACKAGES

<b>END USER DELEGATE - 2 Day Online Conference</b>	<b>€1499</b>
<b>VENDOR DELEGATE - 2 Day Online Conference</b>	<b>€1999</b>
<b>END USER DELEGATE - 2 Day In Person</b>	<b>€2499</b>
<b>VENDOR DELEGATE - 2 Day In Person Conference</b>	<b>€2999</b>
<b>SESSION RECORDED PACKAGE</b>	<b>€899</b>

*The End user & vendor passes include online access to all presentation for the two days including live Q&A sessions, polls, surveys, panel discussion, group chats and session recordings.*

## DELEGATE DETAILS

<b>NAME</b>	<b>NAME</b>
<b>POSITION</b>	<b>POSITION</b>
<b>EMAIL</b>	<b>EMAIL</b>
<b>NAME</b>	<b>NAME</b>
<b>POSITION</b>	<b>POSITION</b>
<b>EMAIL</b>	<b>EMAIL</b>
<b>NAME</b>	<b>NAME</b>
<b>POSITION</b>	<b>POSITION</b>
<b>EMAIL</b>	<b>EMAIL</b>
<b>COMPANY</b>	
<b>ADDRESS</b>	
<b>PHONE</b>	
<b>VAT</b>	
<b>DATE</b>	
<b>SIGNATURE</b>	

# 4TH ANNUAL NRMM ELECTRIFICATION HYBRID FORUM APRIL 27, 28-29 | BERLIN, GERMANY | 2022

## TERMS AND CONDITIONS

By sending this form, I confirm that I have read and accepted the and conditions detailed below.

### Payment Terms:

Payment is due in full and is required within five (5) business days from the registration date. It includes lunches, refreshments and detailed conference materials.

Full Payment must be received prior to the conference date, otherwise Amistat Group reserves the right to reject the attendance.

### Substitution, Cancellation and Postponement Policy:

Substitute delegates are welcome at any time providing adequate notice, typically three (3) business days. No extra charges will be imposed. All registrations carry 50% cancellation liability once signed registration form has been received by Amistat Group. Considering that the full payment is already received by Amistat Group and the client is unable to attend, cancellations shall be received in writing not less than ten (10) days prior to the conference, the client will receive a 80% credit note valid for 1 year to be used at any other event held by Amistat Group within one year from the date of issuance of such credit. Amistat Group is obliged to inform the client of the upcoming events. 20 % of the registrations fees will be retained by as a registration processing charges. The client will still receive the documentation package of the conference regardless of the attendance status.

Should Amistat Group postpones or cancels an event for any reason, the registered client will receive a 100% credit note valid for one year to be used at any other Amistat Group event within 12 months from the date of issuance of such a credit note.

Amistat Group is obliged to inform the client of the new dates of the postponed event and the other upcoming events. Amistat Group carries no liability because of such postponement or cancellation. Further claims are excluded.

### Copyright:

All Intellectual Property rights in all materials produced or distributed by Amistat Group in connection with this event is expressly reserved and any unauthorized duplication, know-how, trademarks, registered designs, publication or distribution and inventions provided by Amistat Group is strictly prohibited and will be governed in accordance with the law of the Czech Republic.

### Data Privacy and Protection:

The customer consents that the data submitted in the registration form are correct, the data will be treated as highly confidential, will be kept and used only by Amistat Group.

Amistat Group are obliged not publish, distribute, sell or make them available to any other parties.

Amistat Group claims that it protects personal data in accordance with law. By registering for one of our events, you give us permission to keep you informed of future events and content within your field of interest.

We will only send the relevant information (by email, or phone). If you wish to subscribe, and for more information regarding how we use your data, your rights and our privacy policy, please send an email to [info@amistatgroup.com](mailto:info@amistatgroup.com) or [dpo@amistatgroup.com](mailto:dpo@amistatgroup.com)

### Force Majeure:

Please note that while speakers and topics were confirmed at the time of publishing and every effort will be made to adhere to the advertised package, unpredictable circumstances might force substitutions, or cancellations of the speakers and/or topics. Amistat Group reserves the right to modify the panel of speakers and/or topics whenever seen necessary without any liability whatsoever.

Amistat Group is obliged to notify any substitutions or alterations to the event agenda and the website. Further claims are excluded. Amistat Group carries no liability whatsoever in the case of extraordinary circumstances, such as and not limited to, Act of God, natural disasters, war, flood, extreme weather that hinders performance of the event in the condition impossibility or impracticality.

If the event's delegate attendee is required to change their attendance option, for example from in-person/hybrid delegate to 'online/virtual delegate, due to extraordinary reasons such as changing epidemic restrictions/regulations and so forth, including but not limited to, force majeure events, the client will be refunded the difference between the attendance option rates within 10 days.

By signing this document you agree that your information will be shared with conference attendees only for networking reasons.

By signing this document you agree that your information will be used by the conference organizers for processing your registration. Part of the registration, is processing your email on a 3rd party events management platform.

No other 3rd Party will have access to these details except for processing your registration in line with GDPR. If you have any questions, please contact [info@amistatgroup.com](mailto:info@amistatgroup.com)