

18th International A3PS Conference
Eco-Mobility 2023

How to achieve 100 % sustainable mobility?

Workshop in 4 thematic groups

Discussion Corner
Battery Electric Vehicles

Discussion Corner
Fuel Cell Vehicles & Hydrogen

Discussion Corner
Hybrids & Sustainable Fuels

Discussion Corner
Advanced Vehicle Concepts

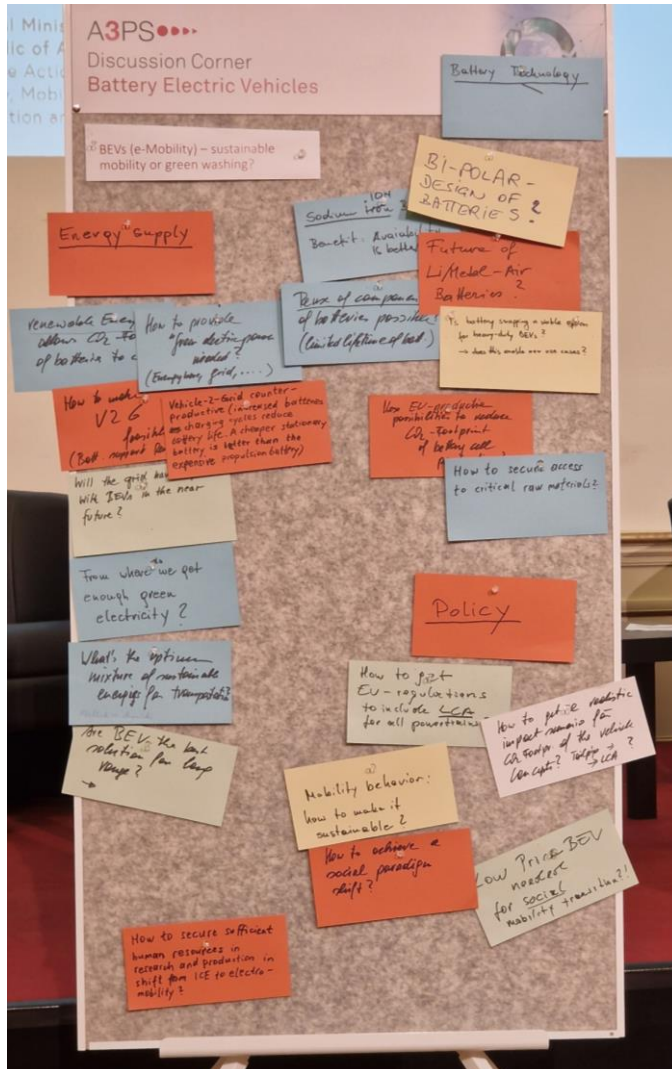
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Innovation and Technology

Discussion Corner Battery Electric Vehicles



Picture of the pin board

Subtitle: **BEVs (e-Mobility) – sustainable mobility or green washing?**

- Moderation & Presentation:
Dr. Raimund Ratzi (Miba)
Christian Sandner (Miba)

Discussion Corner Battery Electric Vehicles

Clustering & Summary 1/2

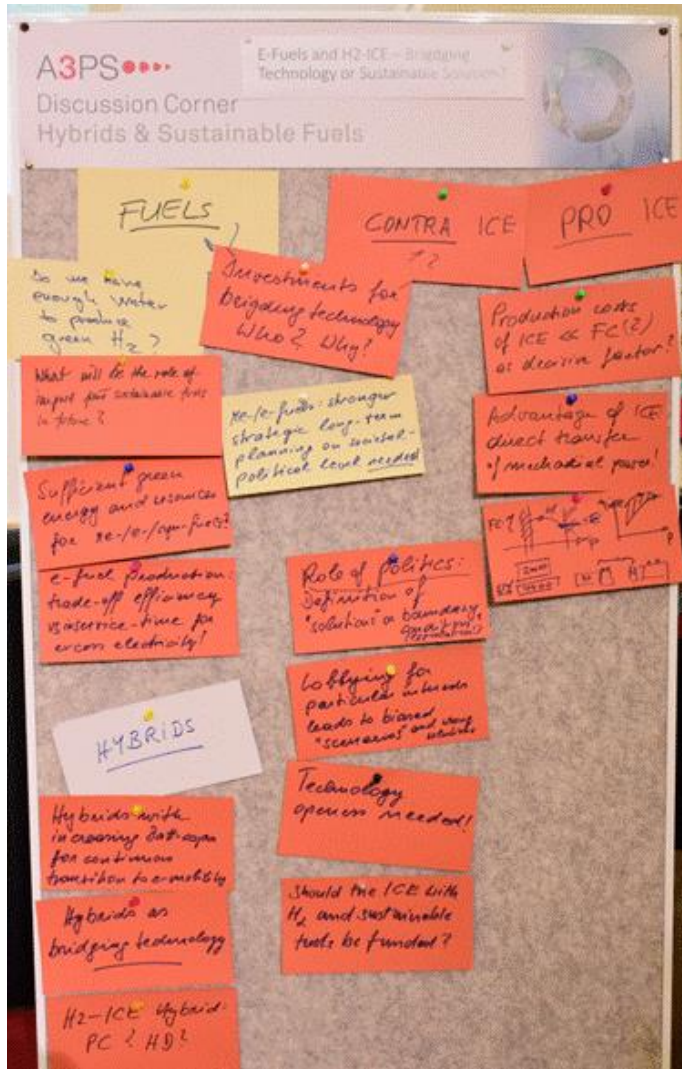
- **Battery technology:**
 - New more sustainable battery technologies
 - Li Metal / Air
 - Na Ion
 - Low CO₂ battery (cell) production technologies
 - Design for reuse of battery components?
 - Benefit and part of sustainability
- **Energy supply:**
 - Green energy: how to provide?
 - Mixture of green energy
 - Electrical
 - Chemical
 - Vehicle to grid: sencefull?

Discussion Corner Battery Electric Vehicles

Clustering & Summary 2/2

- **Policy:**
 - Focus on LCA's (Life Cycle Assessment):
 - Overall view of CO₂ emissions
 - Considers improvements in new methods e.g. battery cells
 - Mobility behavior:
 - Individual vs. public:
 - Social accesability
 - To alternative mobility
 - Affordable e Mobility
 - Education for new technologies

Discussion Corner Hybrids & Sustainable Fuels



Picture of the pin board

Subtitle: E-Fuels & H2-ICE –
Bridging Technology or
Sustainable Solution?

- Moderation & Presentation:
Prof. Peter Prenninger (AVL)

Discussion Corner Hybrids & Sustainable Fuels

Contributions around 3 topics:

1. H2-ICE (many pro's and no con's!):

- Lower production costs of ICE than FC as decisive factor for fast market introduction!
- Further benefits if H2-ICE: high efficiency at high loads and direct generation of mechanical power (no conversion)!

2. Hybrids:

- Bridging technology for fast market introduction of BEV with continuously increasing battery capacities!
- Dedicated H2-ICE for hybrids?

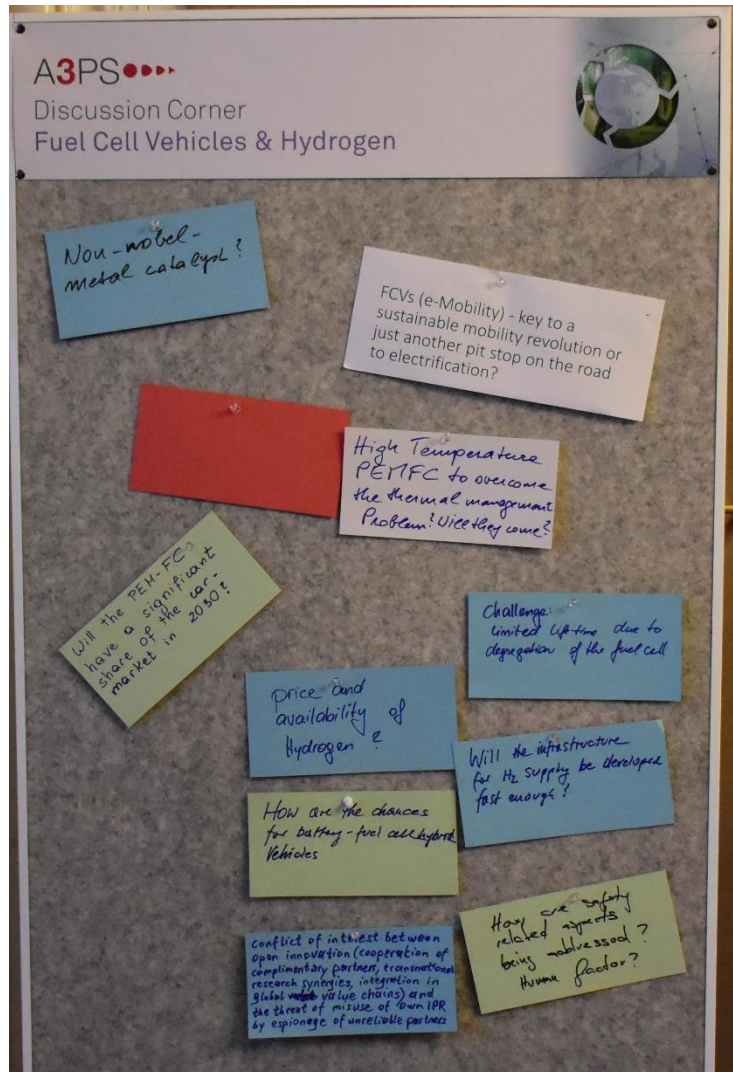
3. Sustainable CO2-neutral fuels:

- Sufficient „green“ energy („excess“ electricity?) and resources for syn-fuels?
- Sufficient efficiency of syn-fuel production for establishment as energy carrier for regional/global energy balancing?

General remarks:

- Boundary conditions and targets (also for e-/re-fuels) to be set by society & politics on technology neutral basis!
- Funding of R&D on H2-ICE?
- Biased points of view due to strong lobbying for particular solutions!

Discussion Corner Fuel Cell Vehicles & Hydrogen



Picture of the pin board

Subtitle: FCVs (e-Mobility) - key to a sustainable mobility revolution or just another pit stop on the road to electrification?

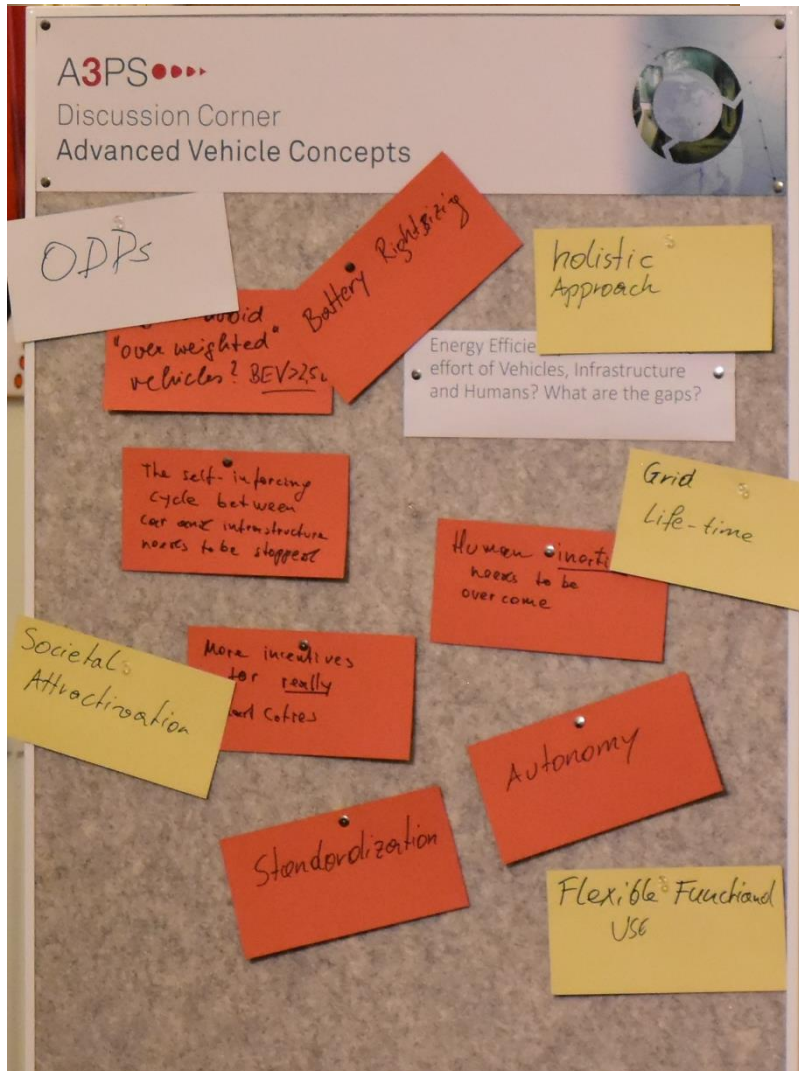
- Moderation & Presentation: Dr. Alexander Trattner (HyCentA)

Discussion Corner Fuel Cell Vehicles & Hydrogen

Clustering & Summary

- **Catalyst:**
usage of expensive and rare noble-metal catalysts is often mentioned as a disadvantage of Fuel Cell Vehicles
→ catalyst problem is almost solved
- **High temperature PEMFC**
promising technology for FCV
- **Safety related aspects?**
→ FCV at least as safe as BEV
- **Competition between FCV and BEV**
 - Price and availability of hydrogen
 - H2 infrastructure
 - Improved FC technologies overcoming current challenges

Discussion Corner Advanced Vehicle Concepts



Picture of the pin board

Subtitle: Energy Efficiency as collaborative effort of Vehicles, Infrastructure and Humans? What are the gaps?

- Moderation & Presentation:
Prof. Bernhard Brandstätter (Virtual Vehicle)
Barbara Unterauer (Magna)

Discussion Corner

Advanced Vehicle Concepts

Summary

- Energy Efficiency as Collaborative Effort between Humans, Infrastructure and Vehicle: Vehicle Autonomy, Connectivity across borders, Predictive Strategies, Battery Rightsizing (trade-off between efficiency (lightweight design), range and use as a storage for PV-buffering), V2G as business model
➔ there will not be a global solution, a holistic approach to consider the energy efficiency of infrastructure, humans and vehicles depends on regional pre-requisites!

