

Naimish S. Pandya: Can we use nanofluids/hybrid nanofluids as a true heat exchanging fluid for the thermal management of electrical vehicles? What is the future of this type of fluid?

Anonymous: Of the battery pack costs, I'm curious what % of this is due to the thermal management system? (In 2020 and expected in 2030.)

Anonymous: Where will the extra electricity come from as many double their daily household usage?  
Bing: Can you please explain a little more the independent cooling supplied by charging stations?

Geslio Lopez: Which is more efficient for cooling down the battery, the parallel flow or having cold plates at the bottom?

Nicholas Robert Jankowski: Prof Amon, you mention the critical battery cooling events involve surge conditions (rapid charging, cell imbalances, etc.). Can you or another presenter comment on active and passive strategies to address thermal transients in the temp management system rather than over designing simple system capacity to deal with these temporary events?

Anonymous: Juergen's diagram shows the receiver on the low pressure side of the circuit, as in an accumulator. Is that the required location in the heat pump application? Or rather, could it be placed on the high side liquid line?

Sobanik: Should the battery always be kept within -10 to 60 degrees Celsius under any circumstance, even when the vehicle is not operational?

Aamir: Any updates on "smart roads", which could charge vehicles while driving?

Aritra Ghosh: Are there engineering scopes for a centralized thermal management system for EVs? From the context of weight reduction and overall vehicle efficiency.

Rafal Wrobel: How does one assure good (sufficient) thermal contact between the individual battery cells and a heat exchanger? The cell mechanical envelope varies with time (operation) and consequently the thermal contact.

Ankit Negi: Is it possible to have an estimate of the cooling load distribution (%) in EV systems such as battery cooling, power electronics, passenger cooling, and so on? I am also wondering what strategies are employed to tackle this disproportionate heat distribution dynamically.

Ajay: You mentioned that at low and high temperatures, there occurs irreversible damage to separator and electrolyte. So what is chemical reaction that causes dendritic growth and irreversible damage?

Omri Tayyara: What in your view would be the future of the design approach for these highly integrated systems? Do you think a co-design or concurrent design method will be the future of EVs and their associated charging systems?

Chris Seeton: With thousands of cells in a battery pack and thermal excursion failure rates of 1 ppm, thousands of cars will spontaneously catch fire. Why should we be worried about the refrigerant flammability when the battery electrolyte is many kg of lithium-fluoride material?