

Short guide for sustainable events

*document based on [1] and references therein, and composed for events financed by the COST Action
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As members of the hep-th community, it is pivotal to acknowledge our responsibility in minimising the environmental footprint of our scientific endeavours. Research indicates that large academic gatherings, like conferences and workshops, significantly contribute to carbon emissions due to travel, energy use, catering, and waste generation. Embracing sustainable practices in our event organisation is not only necessary to address the climate crisis but also serves as a tangible step toward reducing our collective carbon footprint, crucial for a more environmentally conscious scientific community.

Travel and transportation

Why it matters — The scientific consensus highlights that travel, especially by air, significantly adds to carbon emissions. In 2016, transport accounted for nearly a fifth of global emissions, with the sector experiencing the highest growth pre-COVID. Traveling by train is a more sustainable option (roughly by an order of magnitude): trains compared to planes generally have lower greenhouse gas emissions per passenger-kilometer, contribute less to air pollution, and are more energy-efficient, requiring less fuel per passenger.

Suggested practices: prioritise environmentally sustainable modes of transport where possible

- Reimburse only **travel by train or bus** for distances that can be reached within **8 hours (or more)**, following a measure implemented by most European universities. Strongly encourage normal participants to do the same in **e-mail communication**.
- If **travel by air** is taken instead, the reimbursee should apply for an **exception** accounting for personal circumstances when train travel time is less than 8 hours, or submit **proof** when train travel time is more than 8 hours (as suggested by any travel website, e.g. <https://www.routerank.com/en/>). Encourage **combined options** of air travel between major European cities and train travel from/to smaller cities.
- If train travel time is more than 8 hours, consider and encourage (if possible) train travel **options that facilitate working and/or sleeping** to be reimbursed (night train, first class, ...). Consider that the additional cost of sleeper trains could offset a night’s hotel accommodation.

Catering

Why it matters — Scientific studies underline that plant-based catering practices are pivotal in reducing the environmental footprint of events and promoting lower emissions from food-related sources (reducing ~30-50%, cf. fig. 4.2 of [1]). Plant agriculture generally requires less land, water, and energy compared to animal farming (very roughly an order of magnitude when comparing protein or caloric content), and contributes to lower greenhouse gas emissions (with livestock farming being a major source of methane and nitrous oxide). Case studies highlight the importance of finding a specialist plant-based caterer to ensure the quality and flavour of food.

Suggested practices: prioritise plant-based catering where possible

- Make plant-based option the default for lunches, conference dinners, etc.

- Contact caterers which have a strong experience in offering plant-based food and that optimise service methods to reduce food waste. If impossible, consider putting a de-emphasis on meat and completely avoid red meat (calculated to already reduce ~20-30%, cf. fig. 4.2 of [1]). Similar suggestions apply for local restaurants picked for the conference dinner.
- Opt for re-usable and less-polluting options during coffee breaks: instead of plastic cups consider glassware, instead of single packaged biscuits or cakes opt for fruits, large pies, ... These are often also more affordable.

Hybrid options

Why it matters — In the last years, hybrid conferences have proven to be an increasingly versatile tool in the hep-th community. Considering such options offers several advantages: *(i)* it accommodates a larger portion of the research community, overcoming geographical and logistical barriers, *(ii)* it is inclusive, fostering a more diverse and widespread participation in academic discourse, *(iii)* it can reduce the carbon footprint associated with travel, *(iv)* it offers access to the events material for later use, etc. In current times, it is important to accommodate the community for these reasons by the means possible.

Suggested practices:

- Strongly consider hybrid options if the event is held in the “far” north/east/south/west of Europe.
- Consider best hybrid practices. If not offered by the local university, contact technicians experienced in hosting video conferences. Mind the importance of having access to **platforms for video conferencing, good cameras and microphones**. Actively **involve the online audience**; consider e.g. *(i)* breaks after the introductory part of talks for questions of onsite **and** online participants, *(ii)* holding all formal discussions/questions over microphones, *(iii)* hybrid discussion hubs assigned to conference speakers with a 360° view camera and microphone (e.g. using the Meeting OWL) for informal Q&A’s after their talks, *(iv)* using tablets as hybrid blackboards, etc. Mind also the importance of a chair person who is aware of this purpose.
- Encourage recording of the talks and their publication, along with the presentation slides, on the website.

At last, we encourage the organisers to collect feedback from participants on the sustainability initiatives and share the results with us. This initiative is a learning process and we can learn from each single experience, good or bad.

For further ideas, brainstorming or information, the organisers can contact the COST Sustainability Coordinator.

Useful references

[1] Sustainable HECAP+ Initiative, *Environmental sustainability in basic research*, <https://arxiv.org/pdf/2306.02837.pdf>

[2] Creutzig, F., Niamir, L., Bai, X. *et al.* Demand-side solutions to climate change mitigation consistent with high levels of well-being. *Nat. Clim. Chang.* **12**, 36–46 (2022). See also [this press release](#) for clearer language.

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