

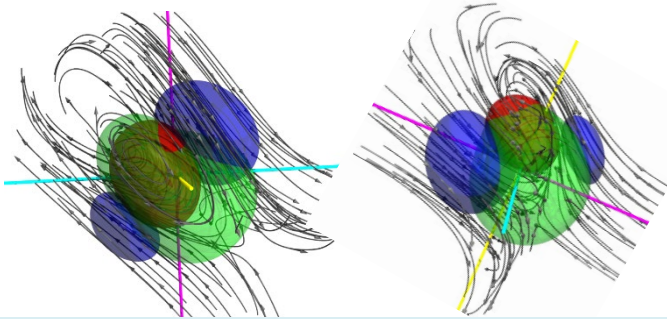


# Fifth Madrid Turbulence Workshop



May 29 – June 30, 2023

Universidad Politécnica de Madrid



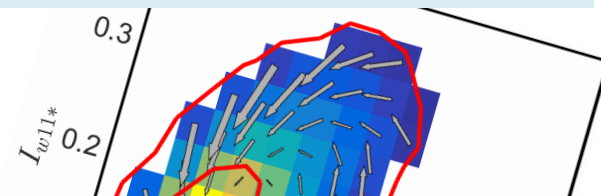
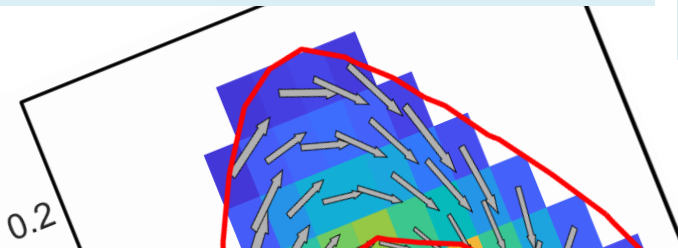
**Problems of interest:** Assume that you have an infinitely fast computer able to answer any question immediately

- What questions would you ask?
- Would they help with turbulence physics?
- Would you also want an infinitely large disk?
- Do the concepts of cause and effect make sense if you know the equations?
- Would they be useful?
- Could AI help?

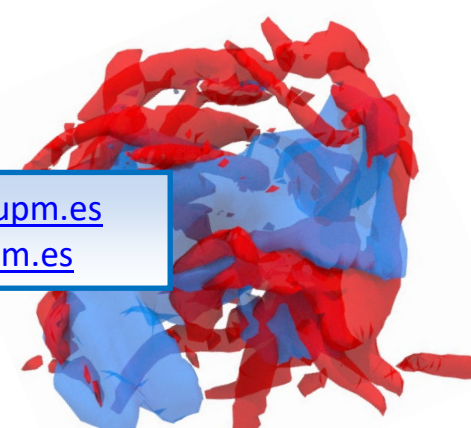
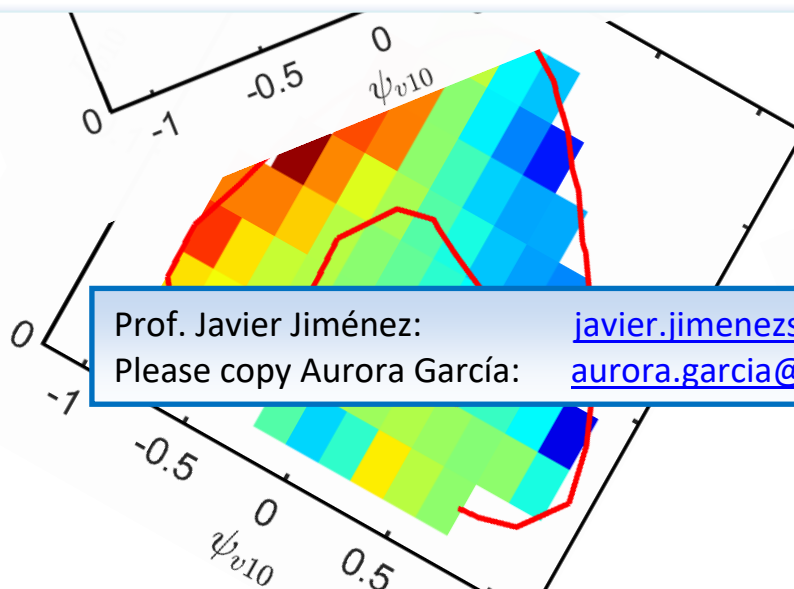
**The goal** of the **CAUST** ERC project is to understand whether the ever-increasing power of computers can be leveraged into untangling the causal dynamics of turbulence. Such as by the use of massive ensembles of simulations followed by analysis of the resulting data. All tools are welcome, from classical hypothesis-driven data processing to the newer grey-box tools of ‘artificial intelligence’. The final goal, in any case, should be physics.

## Resources:

- In house parallel and GPU-based servers, postprocessing and mass storage facilities.
- Access to existing simulation data bases (e.g. channels, homogeneous shear, boundary layers and isotropic turbulence at moderately or ‘high’ Reynolds numbers, including statistically significant time-resolved sequences in all cases)



**Expressions of interest:** A **brief proposal** (two pages at most), including the problem to be addressed, a preliminary work program, resources to be used, and financial requirements, should be submitted to the address below **BEFORE February 6, 2023**. Senior researchers are encouraged to include the participation of junior colleagues or students. A decision, partly based on available space and resources, will be communicated before the end of March.



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