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# Simulation-based inference: a cautionary tale

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Simulation-based inference (SBI) enables approximate Bayesian inference when high-fidelity computer simulators are used to describe phenomena of interest. SBI algorithms have quickly developed and matured over the past years and are already in use across many domains of science such as particle physics, astronomy, cosmology, neuroscience or epidemiology.

Inference, however, remains only approximate, and any downstream analysis depends on the trustworthiness of the approximate posterior. In this talk, we will review the Bayesian inference methodology in the likelihood-free setting and discuss good practices to follow, including the choice of the prior, the choice of the SBI algorithm, and diagnostics that we can use to validate inference results.

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**Classification de Session:** Dealing with Uncertainties workshop