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s2scat : a software in JAX for generative models on the sphere using Scattering Transforms

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Scattering Transforms are a new type of summary statistics recently developed for the study of highly non-Gaussian processes. These statistics can be used to build generative data models, and even to develop new component separation techniques. In the context of upcoming cosmological surveys, such as LiteBIRD for the cosmic microwave background polarisation or the Vera C. Rubin Observatory and the Euclid space telescope for study of the large-scale structures of the Universe, extending these tools to spherical data is necessary. In this work, we developed s2scat, a software in JAX, for scattering transforms on the sphere and focused on the construction of maximum-entropy generative models of several astrophysical fields.

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