

# Turbulent electric potential generation for particle trajectories integration

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## Motivations

- Studying turbulent transport with test particles analysis require long and costly simulations of turbulent regimes
- A low cost turbulence generation model would allow longer analysis without the cost of turbulence simulations
- A low cost turbulence model is developed, combining an auto-encoder to reduce data size and an LSTM network to generate new sequences of data

## Results

- The convolutional variational auto-encoder reconstructs 2D drift-wave turbulence data
- The data sequences generated by the LSTM do not match all the desired physical characteristics yet

## Challenges

- Tend towards a more supervised method
- Force the models to respect some physical constraints

