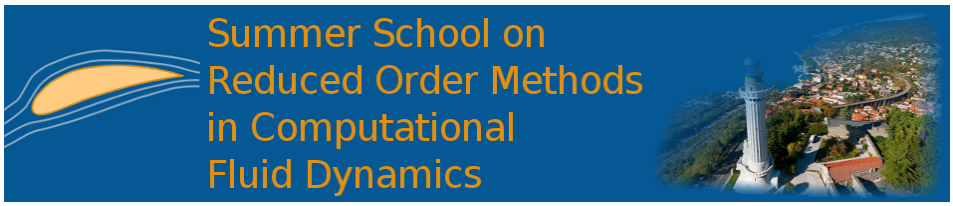

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A Numerical Proof of Shell Model Turbulence Closure

In this work we define a Subgrid Closure model that, employed in a Large Eddy Simulation approach, exhibits correct scaling laws in high order Structure Functions, encompassing intermittent effects and energy cascade dynamics. Due to the massive amount of data needed to reach converged statistics of high order statistical moments, we consider the setting of Shell Models of Turbulence. Our method employs a custom-made Deep Learning architecture comprising a Runge-Kutta integration scheme for the large scales of turbulence, augmented with a Recurrent Artificial Neural Network.

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