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The higher-order gradient model for large-eddy simulation of turbulent flows

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Abstract In the current presentation we will look at large-eddy simulation (LES) as a means to describe and predict the behavior of turbulent flows. After an introduction into LES, we focus on ways to tackle the closure problem that comes with it. In particular, we will consider a closure model called the gradient (or Clark) model. Following from an approximate deconvolution procedure, this model forms a consistent approximation of actual subfilter-scale stresses in the flow. We will discuss its virtues, limitations and its extension into a higher-order gradient model. Finally, we ask ourselves how to improve the representation of dispersive effects using approximate-deconvolution-type models

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