The dyadic model of the Navier-Stokes equations
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The dyadic model of the Navier-Stokes equations has been studied extensively in the past decade. It naturally models the forward energy cascade consistent with Kolmogorov's laws of turbulence. Despite being a simple "toy model", some of its properties have been extended to the Navier-Stokes equations. It also remains a source of challenging problems. I will survey known results and outline open questions.

Most of the work is joint with Susan Friedlander.