Abstract Submitted
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A Matter of Energy Efficiency: From Modeling Falling Raindrops to Controlling Rocket Thrust[1] ERIC HARDING[2], Montgomery College — A power-law accretion model is used to investigate the energy dynamics of a falling raindrop in a Newtonian gravitational field where air resistance is included in the analysis. This model is seen to be related to the rate of ejection of exhaust gases for the rocket problem. Energy analysis of the falling raindrop will be presented for the motion of very small droplets, those of diameter less than 0.003 inches, which are falling at relatively slow speeds, of less than 0.188 m/s. The deviation from self-similar accretion, and other relevant model parameters will be re-interpreted as related to control parameters in the rocket problem. Efficiency of natural energy transfer for the falling raindrop will be compared with the power transfer model for the rocket.

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