The Linear Momentum Equation using an Inertial Frame of Reference

jetblast

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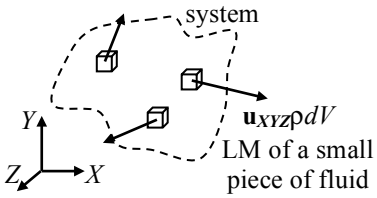

Recall the Reynolds Transport Theorem:

$$\frac{D}{Dt}\left(\int_{V_{sys}} \beta\rho dV\right) = \frac{d}{dt}\left(\int_{CV} \beta\rho dV\right) + \int_{CS} \beta(\rho \boldsymbol{u}_{rel} \cdot d\boldsymbol{A})$$