Radiative Boundary Conditions in CarpetX

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Contents

I. SCALAR WAVES

EOM

$$\dot{u} = \rho, \tag{1}$$
$$\dot{\rho} = \nabla \cdot \boldsymbol{v}, \tag{2}$$
$$\dot{\boldsymbol{v}} = \nabla \rho. \tag{3}$$

where characteristic matrix with respect to normal $\boldsymbol{n}$ can be writen as

$$A^{\boldsymbol{n}} = \tag{4}$$

Characteristics fields

$$\begin{array}{lll} u^{\hat{0}} & = u, & \text{speed} \quad 0, \\ u^{\hat{1}\pm} & = \rho \mp \boldsymbol{n} \cdot \boldsymbol{v}, & \text{speed} \quad \pm 1, \\ u^{\hat{2}} & = \boldsymbol{v} - \boldsymbol{n}(\boldsymbol{n} \cdot \boldsymbol{v}), & \text{speed} \quad 0. \end{array} \tag{5}$$

Radiative boundary condition

$$u^{\hat{1}-} = 0. \tag{6}$$

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