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The Characteristic Problem in General Relativistic Magnetohydrodynamics[1] RYAN HATCH, Brigham Young University — We consider the characteristic problem in relativistic ideal magnetohydrodynamics. We discuss the structure, formulation, and simplifications of the relevant equations in 3+1 dimensions. Having formulated the equations in balance law form, we find the characteristic equation and discuss the resultant wave speeds. We complete the diagonalization process by finding the left and right eigenvectors. The latter will have applicability in computational work in general relativistic magnetohydrodynamics (GRMHD). Indeed, finding these eigenvectors allows for the application of certain high resolution shock capturing techniques. In particular, the types of problems we are interested in include the dynamics of strongly magnetized neutron stars and their magnetospheres.

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