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Progress in Thermodynamics and Electrodynamics of Relativistic Fluids

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Abstract content
   (Max 300 words)

Recent advances in numerical techniques and computing technology, as well as new, fully rigorous theoretical treatments, make analysis of relativistic electro-magneto fluid dynamic processes well within reach. A survey of relativistic electro-magneto fluid dynamic processes will be presented. Numerical treatment of electro-magneto fluid dynamic problems by standard methods requires these problems to be formulated as a system consisting purely of partial differential equations with no constraints. I will therefore express the relativistic electro-magneto fluid dynamic equations as hyperbolic systems in divergence form. In the absence of constraints, a general representation is derived for the characteristic form for first-order systems of quasi-linear partial differential equations in vector fields and scalars. I will conclude with a presentation of the application of relativistic electro-magneto fluid dynamics to specific systems under various physical conditions.

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Yes

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