cases	doc_1		doc_2		decision	id
	authors	• Ian W. Holloway • Sivaguru S. Sritharan	authors	• Ian Holloway • Sivaguru S. Sritharan	DUPLICATES	987
	title	Ideal magnetohydrodynamic equations on a sphere and elliptic-hyperbolic property	title	Ideal Magnetohydrodynamic Equations on a Sphere and Elliptic-Hyperbolic Property		
	publication_date	2020-05-07 00:00:00	publication_date	2019-10-20 04:28:58+00:00		
	source	SupportedSources.OPENALEX	source	SupportedSources.ARXIV		
	journal	Quarterly of Applied Mathematics	journal	None		
	volume		volume			
	doi	10.1090/qam/1571	doi			
	urls	• https://openalex.org/W3021299198 • https://doi.org/10.1090/qam/1571 • https://doi.org/10.1090/qam/1571	urls	• http://arxiv.org/pdf/1910.10637v1 • http://arxiv.org/abs/1910.10637v1 • http://arxiv.org/pdf/1910.10637v1		
	id	id-5397214812019195078	id	id3814579275512915648		
	abstract		abstract	This work contains the derivation and type analysis of the conical Ideal Magnetohydrodynamic equations. The 3D Ideal MHD equations with Powell source terms, subject to the assumption that the solution is conically invariant, are projected onto a unit sphere using tools from tensor calculus. Conical flows provide valuable insight into supersonic and hypersonic flow past bodies, but are simpler to analyze and solve numerically. Previously, work has been done on conical inviscid flows governed by the Euler equations with great success. It is known that some flight regimes involve flows of ionized gases, and thus there is motivation to extend the study of conical flows to the case where the gas is electrically conducting. To the authors' knowledge, the conical magnetohydrodynamic equations have never been derived and so this paper is the first invesitgation of that system. Among the results, we show that conical flows for this case do exist mathematically and that the governing system of partial differential equations is of mixed type. Throughout the domain it can be either hyperbolic or elliptic depending on the solution.		
	versions		versions			