

Simplified Forms of Generalized MHD Equations in a Cylindrical Plasma

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Abstract: The simplified forms of generalized magnetohydrodynamic equations have been derived. The K. Appert theory and Hain-Lüst equation are two special cases of our results when $p \rightarrow 0$ and $\omega/\omega_{ci} \rightarrow 0$. It is shown that the process of taking any limits ($p \rightarrow 0$ or $\omega/\omega_{ci} \rightarrow 0$) will result in a singularity at the Alfvén resonant layer.

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Key words: MHD theory, cylindrical plasma, Alfvén wave

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