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			authors	<ul style="list-style-type: none"><li>Pengfei Chen</li><li>S. Ding</li></ul>		
	authors	<ul style="list-style-type: none"><li>Pengfei Chen</li><li>Shi-Jin Ding</li></ul>	title	Inviscid Limit for the Free-Boundary problems of MHD Equations with or without Surface Tension		
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	urls	<ul style="list-style-type: none"><li>https://openalex.org/W2947915960</li></ul>	id	id-1715888393291994400		
	id	id9044544107403941002	abstract	In this paper, we investigate the convergence rates of inviscid limits for the free-boundary problems of the incompressible magnetohydrodynamics (MHD) with or without surface tension in $\mathbb{R}^3$ , where the magnetic field is identically constant on the surface and outside of the domain. First, we establish the vorticity, the normal derivatives and the regularity structure of the solutions, and develop a priori co-norm estimates including time derivatives by the vorticity system. Second, we obtain two independent sufficient conditions for the existence of strong vorticity layers: (I) the limit of the difference between the initial MHD vorticity of velocity or magnetic field and that of the ideal MHD equations is nonzero. (II) The cross product of tangential projection on the free surface of the ideal MHD strain tensor of velocity or magnetic field with the normal vector of the free surface is nonzero. Otherwise, the vorticity layer is weak. Third, we prove high order convergence rates of tangential derivatives and the first order normal derivative in standard Sobolev space, where the convergence rates depend on the ideal MHD boundary value.		
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