	doc_1		doc_2		decision	id
cases	authors	• S. Rosswog • D. J. Price	authors	• S. Rosswog • D.J. Price	DUPLICATES	1101
	title	3D meshfree magnetohydrodynamics	title	3D meshfree magnetohydrodynamics		
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	urls	• http://arxiv.org/pdf/0802.0418v1 • http://arxiv.org/abs/0802.0418v1 • http://arxiv.org/pdf/0802.0418v1	urls	• https://archive.org/download/arxiv-0802.0418/0802.0418.pdf		
	id	id6463327441517221557	id	id-6939777483914791182		
	abstract	We describe a new method to include magnetic fields into smooth particle hydrodynamics. The derivation of the self-gravitating hydrodynamics equations from a variational principle is discussed in some detail. The non-dissipative magnetic field evolution is instantiated by advecting so-called Euler potentials. This approach enforces the crucial $\nabla\cdot\vec{B}=0$-constraint by construction. These recent developments are implemented in our three-dimensional, self-gravitating magnetohydrodynamics code MAGMA. A suite of tests is presented that demonstrates the superiority of this new approach in comparison to previous implementations.	abstract	We describe a new method to include magnetic fields into smooth particle hydrodynamics. The derivation of the self-gravitating hydrodynamics equations from a variational principle is discussed in some detail. The non-dissipative magnetic field evolution is instantiated by advecting so-called Euler potentials. This approach enforces the crucial âˆ‡Â·Bâƒ—=0-constraint by construction. These recent developments are implemented in our three-dimensional, self-gravitating magnetohydrodynamics code MAGMA. A suite of tests is presented that demonstrates the superiority of this new approach in comparison to previous implementations.		
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