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Mathematics > Analysis of PDEs

# A lower bound on blowup rates for the 3D incompressible Euler equation and a single exponential Beale-Kato-Majda type estimate

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(Submitted on 3 Jul 2011 (v1), last revised 30 Oct 2011 (this version, v2))

We prove a Beale-Kato-Majda type criterion for the loss of regularity for solutions of the incompressible Euler equations in  $H^{s}(R^3)$ , for  $s_{s}\$  Instead of double exponential estimates of Beale-Kato-Majda type, we obtain a single exponential bound on  $||u(t)|_{H^s}$  involving the length parameter introduced by P. Constantin in  $cite{co1}$ . In particular, we derive lower bounds on the blowup rate of such solutions.

Comments:	AMS Latex, 15 pages
Subjects:	<b>Analysis of PDEs (math.AP)</b> ; Mathematical Physics (math-ph)
MSC classes: Journal reference:	76в03 Commun. Math. Phys., 314 (1), 265 - 280, 2012
Cite as:	arXiv:1107.0435 [math.AP]
	(or arXiv:1107.0435v2 [math.AP] for this version)

#### **Submission history**

From: Thomas Chen [view email] [v1] Sun, 3 Jul 2011 08:02:01 GMT (13kb) [v2] Sun, 30 Oct 2011 15:29:33 GMT (13kb)

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