Abstract Submitted
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Loitsiansky was correct in the infinite domain JONATHAN GUSTAFSSON, McMaster University, WILLIAM K. GEORGE, Chalmers University of Tech. — Decaying isotropic, homogeneous, incompressible turbulence in a infinite domain is examined. The Saffman integral[1]: $\int_0^\infty r^2 B_{ii}(r)dr$ is found to be zero not as previously assumed $\pi^2 M$. Under Saffman assumption the integral doesn't converge in the infinite domain. Using the same method on the Loitsiansky equation[2]:

$$\frac{\partial}{\partial t}\int_0^\infty r^4 B_{LL}(r)dr = -2[B_{NN,L}(r)r^4]_0^\infty + +2\nu[\frac{\partial B_{LL}(r)}{\partial r}r^4]_0^\infty \quad (1)$$

shows that for an infinite domain $\lim_{r\to\infty} r^4 B_{NN,L}(r) = 0$. Contradicting the findings of I. Proudman & W. H. Reid[3] and G. K. Batchelor & I. Proudman[4]. However in a finite domain the above result found in this research do not hold.

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[3]I. Proudman and W. H. Reid, Philos. Trans. R. Soc. London Ser. A 247, 163 (1954).
[4]G. K. Batchelor and I. Proudman, Philos. Trans. R. Soc. London Ser. A 248, 369 (1956).

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