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Magnetic Structures Produced by the Small-Scale Dynamo LOUISE WILKIN, UCSB, CARLO BARENGHI, Newcastle University, UK, ANVAR SHUKUROV, Newcaslte University, UK — Small-scale dynamo action has been obtained for a flow previously used to model fluid turbulence, where the sensitivity of the magnetic field parameters to the kinetic energy spectrum can be explored. We apply quantitative morphology diagnostics, based on the Minkowski functionals, to magnetic fields produced by the kinematic small-scale dynamo to show that magnetic structures are predominantly filamentary rather than sheetlike. Our results suggest that the thickness, width, and length of the structures scale differently with magnetic Reynolds number as $R_m^{-2/(1-s)}$ and $R_m^{-0.55}$ for the former two, whereas the latter is independent of R_m, with s the slope of the energy spectrum.

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