

Supergranulation and Its Dynamism

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Abstract : A few parameters of supergranular cells are studied using Intensity patterns from the Kodaikanal Solar Observatory and Dopplergrams from SOHO. The turbulent aspect of the solar supergranulation is established by examining the interrelationships amongst the parameters characterizing a supergranular cell, namely size, lifetime, Area, Perimeter, Fractal dimension and horizontal flow velocity. The complexity of supergranular cells depicted by their fractal dimension is indicative of their non-laminar characteristics. The findings corroborate Kolmogorov's theory of turbulence. Some parameters of supergranular cells also show a latitudinal dependence. Supergranulation is a synonym of convective phenomenon and hence can shed light on the physical conditions in the convection zone of the Sun. It plays a major role in the transport and dispersal of magnetic fields that may have a relation to the phases of the solar cycle.

Keywords : sun, lifetime, length scale, turbulence

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