

Abstract Submitted
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On the spiral roll state in thermal convection in spherical shell TOMOAKI ITANO, TAKAHIRO NINOMIYA, KEITO KONNO, MASAKO SUGIHARA-SEKI, Faculty of Eng. Sci., Kansai Univ. — It is found that the “giant” spiral roll state in thermal convection in non-rotating spherical shell with a finite Pr reported by Zhang and others (Phys.Rev.E, 2002) exists with a subtle modification under conservation of invariance of C_2 symmetry even at a relatively thicker spherical shell. By means of a detail numerical bifurcation analysis with aid of direct numerical simulation for the time-development of the system, it is elucidated that this state originates, in the parameter space, at a higher Rayleigh number but a lower azimuthal wavenumber than the set of parameters where the state previously found by Zhang exists.

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