Caption for Movie 1

Temporal evolution of the spin-up process state with the condition of *Ra* = 2.0 × 106 and *Ta* = 3.0 × 107 in the Γ = 2.00 cylinder (corresponding to figure 3). The playback speed is 5 times the actual.

Caption for Movie 2

Temporal evolution of the spin-up process state with the condition of *Ra* = 2.0 × 106 and *Ta* = 3.0 × 107 in the Γ = 4.75 cylinder (corresponding to figure 4). The playback speed is 5 times the actual.