Vertical hovering of a symmetric flapping model MAKOTO IIMA, TATSUO YANAGITA, Hokkaido University — We study the motion of a model equipped with flapping wings under the influence of gravity (external force). This model moves in a two-dimensional fluid according to the hydrodynamic force generated by vortices separated from its wings. As a result of the interaction between the vortices and the wings, the model moves steadily in a direction against the gravity. Moreover, hovering, i.e., a steady flight staying in a particular position, can be achieved here by the effective use of vortex structures enhancing the hydrodynamic force that supports the model against gravity. The system exhibits a transition from the state with hovering to a state where hovering is impossible, as the model parameters are changed.