Flow induced by a jellyfish SEIJI ICHIKAWA, OSAMU MOCHIZUKI, Toyo University, BIOMECHANICAL ENGINEERING LABORATORY TEAM — The purpose of this study is to understand experimentally a propulsion mechanism of a jellyfish for applying its mechanism to a soft-matter micro robot. The traveling of a jellyfish is governed by viscous force because of following reasons: the main component of jellyfish is water whose percentage is 98%, and the Reynolds number is low. We observed the motion of a jellyfish by a motion-capture camera, and measured the vector field of flow around a jellyfish by using a PIV system. A jellyfish is principally propelled by a vortex ring ejected at the contracting phase of a jellyfish motion. It is interesting that it never stop traveling even at the expanding phase. A vortex ring observed at the inside of a jellyfish at the expanding phase is found to play an important rule for traveling at the expanding phase. We discuss that the inside vortex ring with the opposite vorticity contribute decrease in shear stress of the inside boundary layer and increase in circulation of the shed vortex ring.