

T1_89 PHYSICS IN CONTEXT: VIDEO ANALYSIS OF JUDO SITUATIONS TO LEARN PHYSICS

Alberto Stefanel, Marisa Michelini, *Department of Physics, University of Udine, Udine, Italy*
(stefanel@fisica.uniud.it)

The context of sport offers much opportunity to evidence how physics construct model analyzing complex and not controlled phenomena as in each sports situations and actions. A proposal on physics in the context of Judo was designed, centered on the video analysis and modeling of judo throw techniques. The approach follows this schema: the motion of the athlete that is thrown on the tatami is analyzed, measuring from video the kinematical quantities describing the motion; simple rigid body models was constructed that can give count of the observed motion. Three main aspects are analyzed: the force couple acting on Uke, the opponent who undergoes the technique; the centers of mass relative positions of the two contestants and in particular the trajectory of Uke; the energy exchange condition during a judo action that offers an interesting example of resonant coupling.