MATHEMATICAL MODEL AND CONTROL OF SHIP MOTION BASED ON THE FUZZY LOGIC CONTROL

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ABSTRACT

In this paper, the author presents the mathematical model and control of ship motion based on the fuzzy logic control. The goal of the research is to consider the mathematical model and the adaptive synthetic methods basing on the fuzzy logic of the control system of the ship that is negatively affected by the external disturbances to its operation. Consequently, it's considered the problem of design and modelling of the self-tuning auto pilot regulator of the ship (Auto pilot regulator). The paper devotes the experiment on the Offshore service Vessel in Vietnam with the method as: the mathematical models of ship motion, the mathematical model of the auto pilot regulator, synthetic of the ship control algorithms based on the approached fuzzy logic method.

Keywords: Mathematical Models of Ship Motion, Auto Pilot Regulator, Approached Fuzzy Logic Method.