



NON-MINIMUM PHASE MODEL OF VERTICAL POSITION ELECTRO-HYDRAULIC CYLINDER FOR TRAJECTORY ZPETC

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Abstract— Hydraulic actuator has been widely used in industrial applications due to its fast response and capability of moving heavy load. The nonlinear properties of hydraulic cylinder had challenged researchers to design a suitable controller for position control, motion control and tracking control. Based on these problems, we had done a real-time digital tracking control studies on electro-hydraulic cylinder using trajectory zero phase error tracking control (ZPETC) without factorization of zeros polynomial algorithm. With the proposed strategy, the controller parameters are determined using comparing coefficients methods. The electro-hydraulic system mathematical model is approximated using system identification technique with non-minimum phase system being considered. The real-time experimental result will be compared with simulation result using a model from a real plant.

Keywords— Feedforward Control, ZPETC, System identification, pole placement, non-minimum phase