

## On Extremal Shift Strategies in Time-Delay Systems

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**Abstract**—We consider a differential game in which the motion of a conflict-control dynamic system is described by a delay differential equation, the initial condition is determined by a piecewise continuous function, and the quality index assesses the history of the motion realized by the terminal time and involves an integral estimate for the realizations of the players' controls. The optimality of the players' positional strategies constructed by the method of extremal shift to an accompanying point is proved. The main result of the paper states that the accompanying point is chosen from a finite-dimensional neighborhood of the current state of the system.

**Keywords:** positional differential game, time-delay system, extremal shift.

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