

# The Heterogeneous Stochastic Two-Stage Air to Air Combat

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## ABSTRACT

This paper presents a new two-staged 2-on-2 air-to-air combat model with the aid of heterogeneous stochastic process based on interfering time of the multiple types of weapons. Most of the previous stochastic combat model have disadvantage such that each of two sides assumes unlimited ammunition and all the combatants on the same side are identical.

Therefore, we introduce a new theory which is more realistic and reflects on the real situation. In this article, the kill probability is simultaneously varied with three status: the intercept event, the different interfering time distribution dependent on each combatant, and the number of missile. As a result, the important combat measures are derived such as (1) weight of the tactical advantage using network reliability in the first stage (2) in the second stage, the kill probability reflected by the tactical weight. Finally the advantage of this paper can be applied to the complicated modern air combat with various tactical situation.