

Games in Aerospace: Homing Missile Guidance

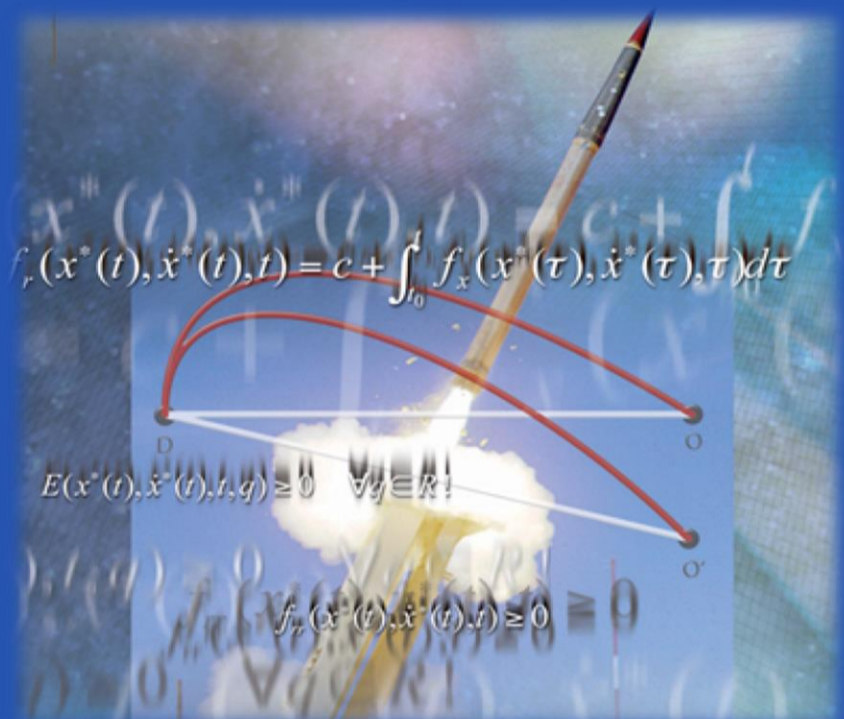
Guest Seminar

Prof. Joseph Z. Ben-Asher
Department of Aerospace Engineering
Technion – Israel Institute of Technology, Haifa, Israel



Wednesday, September 13th 2017
11:00 – 12:00, MW 3618

The development of a homing missile guidance law against an intelligent adversary requires the solution to a differential game. First, we formulate a simple game to demonstrate the main ideas. Then we will formulate the deterministic homing guidance problem as a linear dynamic system with an indefinite quadratic performance criterion (LQ). This formulation allows the navigation ratio to be greater than three, which is obtained by the one sided linear-quadratic regulator and appears to be more realistic.



However, this formulation does not allow for saturation in the actuators. A deterministic game allowing saturation is formulated and shown to be superior to the LQ guidance law, even though there is no control penalty. To improve the performance of the quadratic differential game solution in the presence of saturation, trajectory shaping feature is added.

For more information, please visit our homepage:
www.fsd.mw.tum.de

