



Operational Calculus in Noncooperative Stochastic Games [†]

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Abstract: We continue investigating an antagonistic game of two players modeled by stochastic processes describing mutual casualties. The game is observed at some random epochs of time. We consider the paths of the game in which one player loses the game. A related functional in our recent work was expressed in terms of the inverse of two-dimensional Laplace–Carson transform. Using operational calculus we manage to find explicitly inverse transforms of the exit time and casualties to both players upon the exit from the game in terms of modified Bessel functions. All are concluded by numerical examples.

Keywords: *noncooperative stochastic games; fluctuation theory; marked point processes; Poisson process; ruin time; exit time; first passage time; Bessel functions.*

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