# Some Risk Sensitive Linear-Exponential-Quadratic Stochastic Differential Games

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Some stochastic differential games in finite dimensional spaces are formulated and solved. The games have multi-agents and payoffs that are risk sensitive exponential-quadratic. The games are described by linear stochastic differential equations with Brownian motions. The agents act independently of one another and the explicit optimal control strategies form a Nash equilibrium. The agents have either complete observations or partial observations of the system state. In the partially observed problem the observations are the same for all agents which occurs in broadcast situations. The method of solution does not require solving Hamilton-Jacobi-Isaacs equations or back- ward stochastic differential equations. A generalization to infinite dimensional spaces is noted. Some games with nonlinear stochastic equations are also solved.