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Spatial evolutionary games and induced bystander effect

We present an application of evolutionary game theory to modelling of some processes important from oncological point of view. A studied phenomenon is a radiation induced bystander effect, in which three different strategies (phenotypes) of cells take part. The proposed payoff table of fitness, related to environment adaptation and genetical cell behaviour, contains costs/profits of bystander effect, choice of apoptotic pathway, producing growth factors and resistance against bystander effect. We consider a game theory model including spatial cells allocation (the game is played on lattice). We discuss also different polymorphic equilibrium points dependent on model parameters, types of spatial games and players distribution.