

ILEA, Mihai; TURNEA, Marius, *STIFF EQUATION WITH APPLICATION IN OVARIAN CANCER DISEASES*

Abstract: Cancer is characterised by an abnormal, uncontrolled growth that may destroy and invade adjacent healthy body tissues or elsewhere in the body. Ovarian carcinoma is the leading cause of death from gynaeco-logical malignancies in the western world. Ovarian cancer is thought to result from an accumulation of genetic changes. We propose an original mathematical model with small parameter for the growth of cell-cycle dose limiting bone marrow in ovarian cancer. Both the equation of this system includes small parameter . We introduce the mathematical technique known as boundary function method for singular perturbation system. In this system, the small parameter is an asymptotic variable, different from the independent variable. We write solution of this system in a small parameter, and investigation of asymptotic solution for system. Using the program Matlab and numerical method Runge-Kutta, I did various simulations for different values of biological parameters presented in the model studied .

Keywords: boundary function, cell-cycle, ovarian cancer, small parameter, asymptotic analyses

ACM/AMS Classification: 92C42, 92C47, 34E05, 34E10, 34E20