

عنوان مقاله:

Stability Analysis of a Two-Dimensional Axon G-R Model in the Human Body for Cancer Radiation Therapy

محل انتشار:

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خلاصه مقاله:

This article investigates the stability of the axon system in the human body during radiation therapy for cancer patients. The system is described by partial differential equations and is linear and continuous time. To apply existing theories, which are often in the discrete-time domain, the system is discretized using the direct method. The article begins by defining radiation therapy and its relationship with the electric current of the human body's axon system. It then examines the input and output of the system and calculates the transformation function, resulting in the realization of G-R for the system. The stability of the axon system is analyzed using available methods for two dimensional systems. The optimal range of the system variables for stability is determined, and the stability of the system is simulated for an assumed number within that range. Additionally, the article checks the system's controllability and observability to determine the possibility of applying a controller and observer.

کلمات کلیدی:

Partial differential equation, Two-dimensional system, Stability, Axon

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