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Analysis of stability and bifurcation for an SEIR epidemic model with saturated recovery rate. (English) Zbl 1219.92060

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Summary: We study an SEIR epidemic model with saturated recovery rate. A backward bifurcation leading to bistability possibly occurs, and global dynamics are shown by compound matrices and geometric approaches. Numerical simulations are presented to illustrate the results.

MSC:

92D30 Epidemiology
34C23 Bifurcation theory for ordinary differential equations
34D23 Global stability of solutions to ordinary differential equations
34D20 Stability of solutions to ordinary differential equations

Keywords:

SEIR epidemic model; global stability; backward bifurcation

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