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$E(t)$
$I(t)$
$R(t)$
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$E(t)+$
$I(t)+$
$R(t) =$
$N(t)$
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Equaes Diferenciais Ordinrias:
$N =$
$S(t)+$
$E(t)+$
$I(t)+$
$R(t)$
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$\{\ dS(t)dt =$
$-\frac{\beta}{N}\, I(t)\, S(t)+$
$\delta\, R(t)$
$S(0) =$
S_0
$\frac{dE(t)}{dt} =$
$+\frac{\beta}{N}\, I(t)\, S(t)-$
$\gamma\, E(t)$
$E(0) =$
E_0
$\frac{dI(t)}{dt} =$
$+\gamma\, E(t)-$
$\alpha\, I(t)$
$I(0) =$
I_0
$\frac{dR(t)}{dt} =$
$+\alpha\, I(t)-$
$\delta\, R(t)$
$R(0) =$
R_0

$\{\, S^n = S^{n-1} - \frac{\beta}{N}\, I^{n-1}\, S^{n-1} + \delta\, R^{n-1} S^0 = S_0 E^n = E^{n-1} + \frac{\beta}{N}\, I^{n-1}\, S^{n-1} - \gamma\, E(t)^{n-1} E^0 = E_0 I^n = I^{n-1} + \gamma\, E^{n-1} - \alpha\, I(t)^{n-}$

(1)

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S_0
E_0
I_0
R_0
n
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Autmatos Celulares:
lattice
lattice
??

$$\begin{cases} s_{i,j}^{t+1} = s_{i,j}^t - \beta s_{i,j}^t i_{i,j}^t - s_{i,j}^t \left(\sum_{(\alpha,\beta)\in\mathcal{V}^*} \mu_{\alpha,\beta}^{(i,j)} \frac{N_{i+\alpha,j+\beta}}{N_{i,j}} i_{i+\alpha,j+\beta}^t \right) + \delta r_{i,j}^t \\ e_{i,j}^{t+1} = e_{i,j}^t + \beta s_{i,j}^t i_{i,j}^t + s_{i,j}^t \left(\sum_{(\alpha,\beta)\in\mathcal{V}^*} \mu_{\alpha,\beta}^{(i,j)} \frac{N_{i+\alpha,j+\beta}}{N_{i,j}} i_{i+\alpha,j+\beta}^t \right) - \gamma e_{i,j}^t \\ i_{i,j}^{t+1} = i_{i,j}^t + \gamma e_{i,j}^t - \alpha i_{i,j}^t \\ r_{i,j}^{t+1} = r_{i,j}^t + \alpha i_{i,j}^t - \delta r_{i,j}^t \\ s_{i,j}^0 > 0, e_{i,j}^0 \geq 0, i_{i,j}^0 > 0, r_{i,j}^0 \geq 0, \end{cases}$$

(2)

β
lattice
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***Lattice Gas Cellular Automata*:**
Lattice Gas Cellular Automata
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Sistemas multi-agentes:
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