

[Been-Lon Chen, 2007. Notation: l stands for lambda. sig stands for sigma. gam stands for gamma.

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[ > restart: with(plots):
```

```
[ > gam:=0.5: sig:=1.2: rho:=0.02: mu:=0.5: delta_s:=0.1: A:=0.2: B:=0.1: delta_k:=0:
```

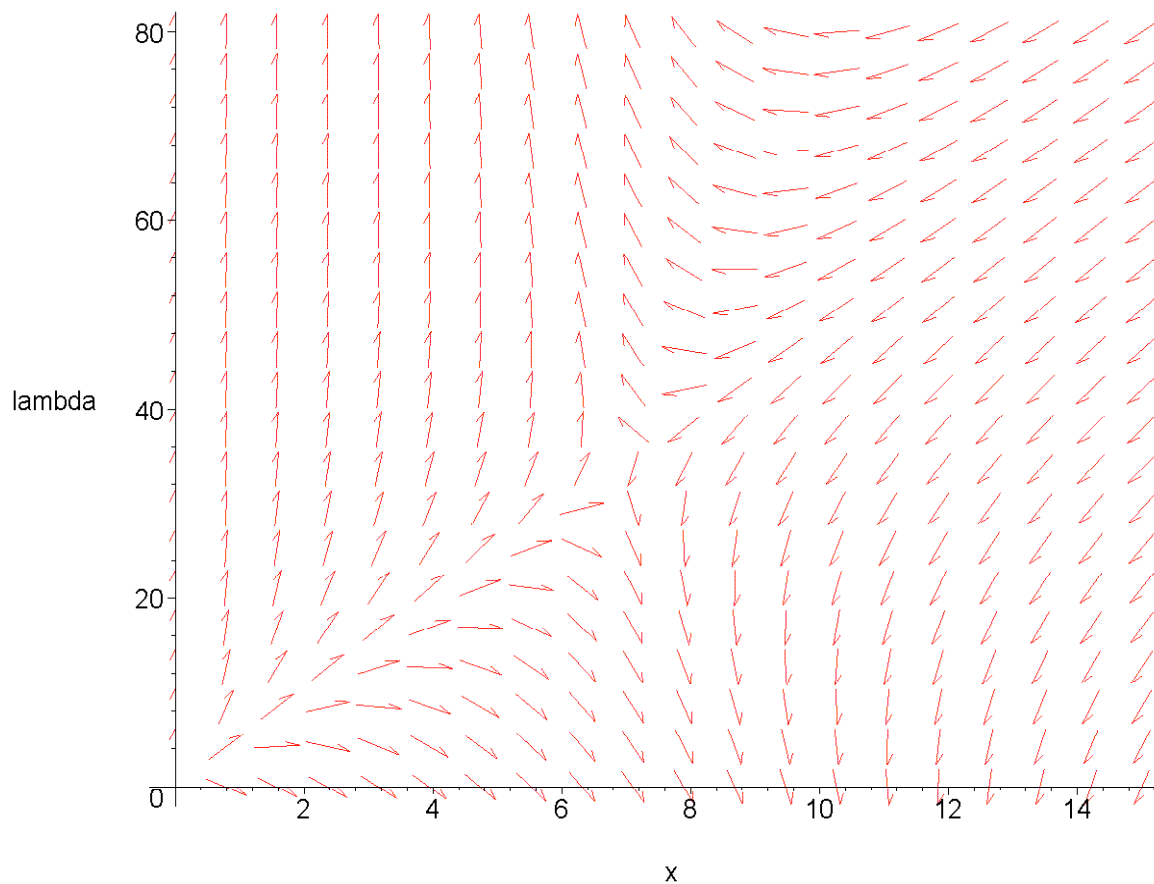
[Chen's Dynamic System (7a) and (7b). These are Chen's equations as he writes them.

```
[ > ldot:= diff(l(t),t) = l(t)*  
(A-delta_k+delta_s-gam*x(t)/l(t)-B*(1-(1-gam)*mu)*(x(t))^(mu)):
```

```
[ > xdot:= diff(x(t),t) = x(t)* ( (A-delta_k-rho+  
(gam*(1+(sig-1)/mu)*x(t)/l(t)-(rho+mu*delta_s+gam*(sig-1)*delta_s)+gam*mu*B*x(t)^(mu))  
*B*mu*l(t)*x(t)^(mu-1)+gam*(sig-1)*(B^(2)*mu*l(t)*x(t)^(2*mu-1)-delta_s)) /  
(sig+(sig+mu-1)*B*mu*l(t)*x(t)^(mu-1)) - (B*x(t)^(mu-delta_s)) ):
```

[Simulate the dynamic system

```
[ > FNS:={x(t),l(t)}: SYS:={xdot,ldot}:  
phase:=DEtools[dfieldplot](SYS,FNS,t=0..50,scene=[x(t),l(t)],x=0.0..15,l=0.0..80):  
display({phase},labels=[`x`,`lambda`]);
```



[I have chosen parameter values that Chen claims yield two balanced growth paths (BGP). They don't. Stretch the axes in any direction, you will not find a second (stable) stationary state. For analytical proofs, read my comment submitted to JMCB.