# Modelare si Simulare
# Tema laborator
# -
# Tema 2
# Instalatie hidraulica cu patru rezervoare

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**Introducere**
Simularea procesului este salvata cu versiunea MATLAB R2017a si pentru rularea ei se va folosi scriptul *run_tema_2017.m*. Pentru a rula cu MATLAB R2018a se va folosi scriptul *run_tema.m*

**Structura proiectului**
Ficare subpunct are doua fisiere aferente (*load_workspace_*.m* si *tema_comm_*.m*)
Pentru a rula simulari individuale se pot comenta/decomenta doua cate doua liniile respective.
Fisierul *animate_levels.m* este folosit dupa fiecare simulare pentru a crea o reprezentare grafica a evolutiei nivelelor rezervoarelor cu apa.
Pentru simularile repetate, animatia se poate dezactiva prin setarea flagului: *animation_enable* = 0

**Subpunctul a**

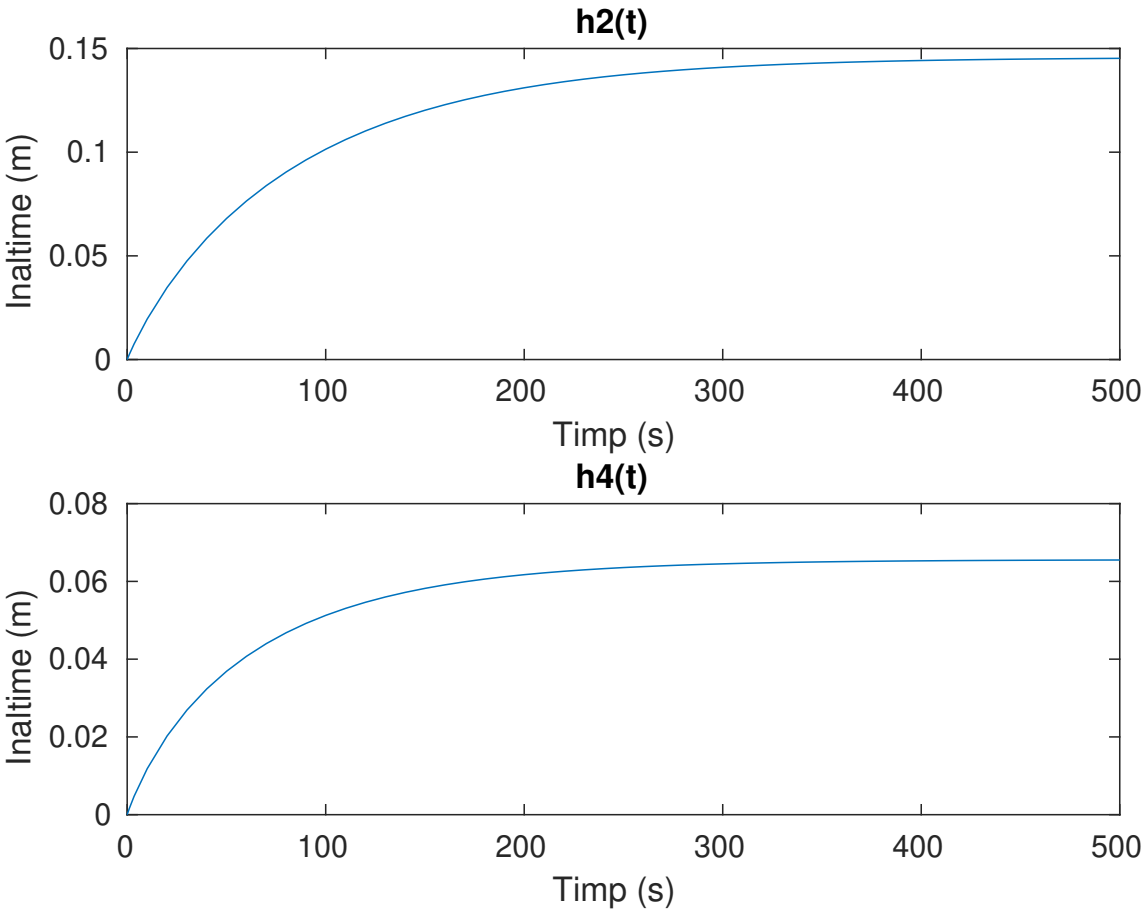



Figure 1: Evolutia iesirilor y2 si y4

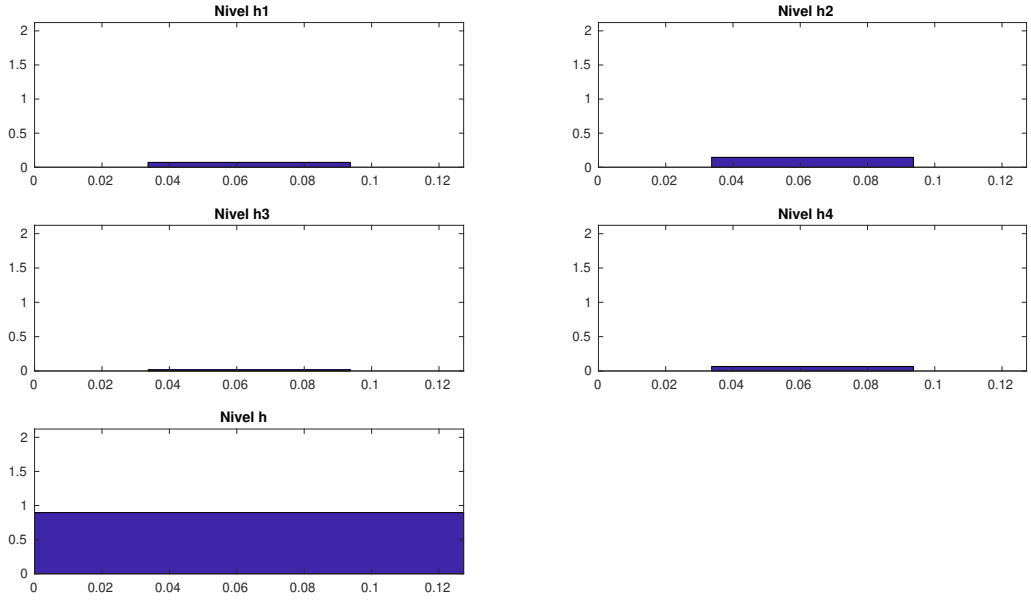



Figure 2: Exemplu animate levels

**Subpunctul b**
Alo

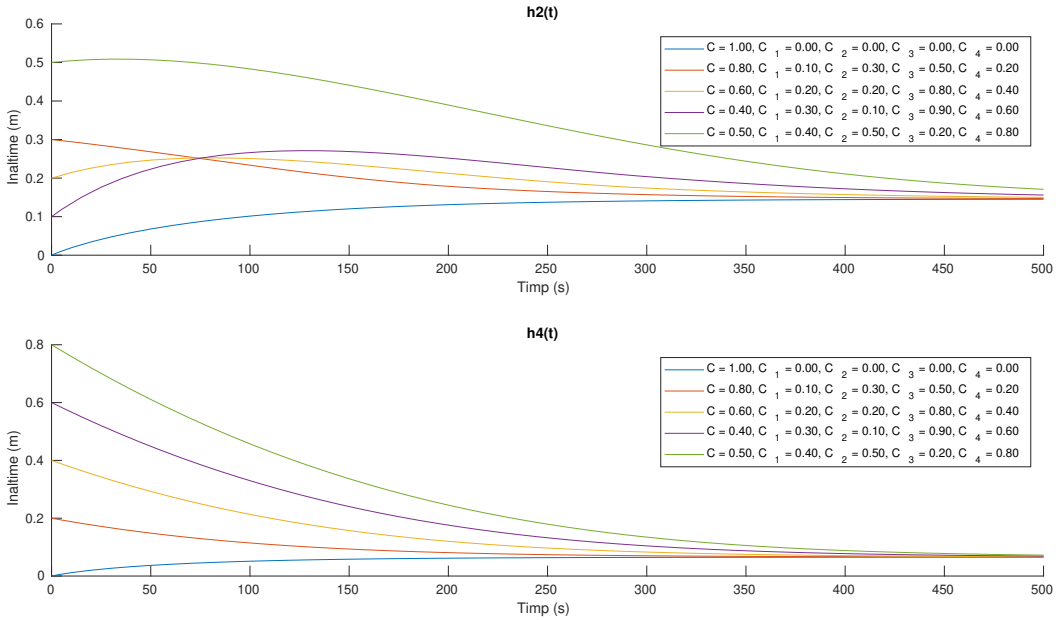



Figure 3: Evolutia iesirilor y2 si y4

**Subpunctul c**
Salut

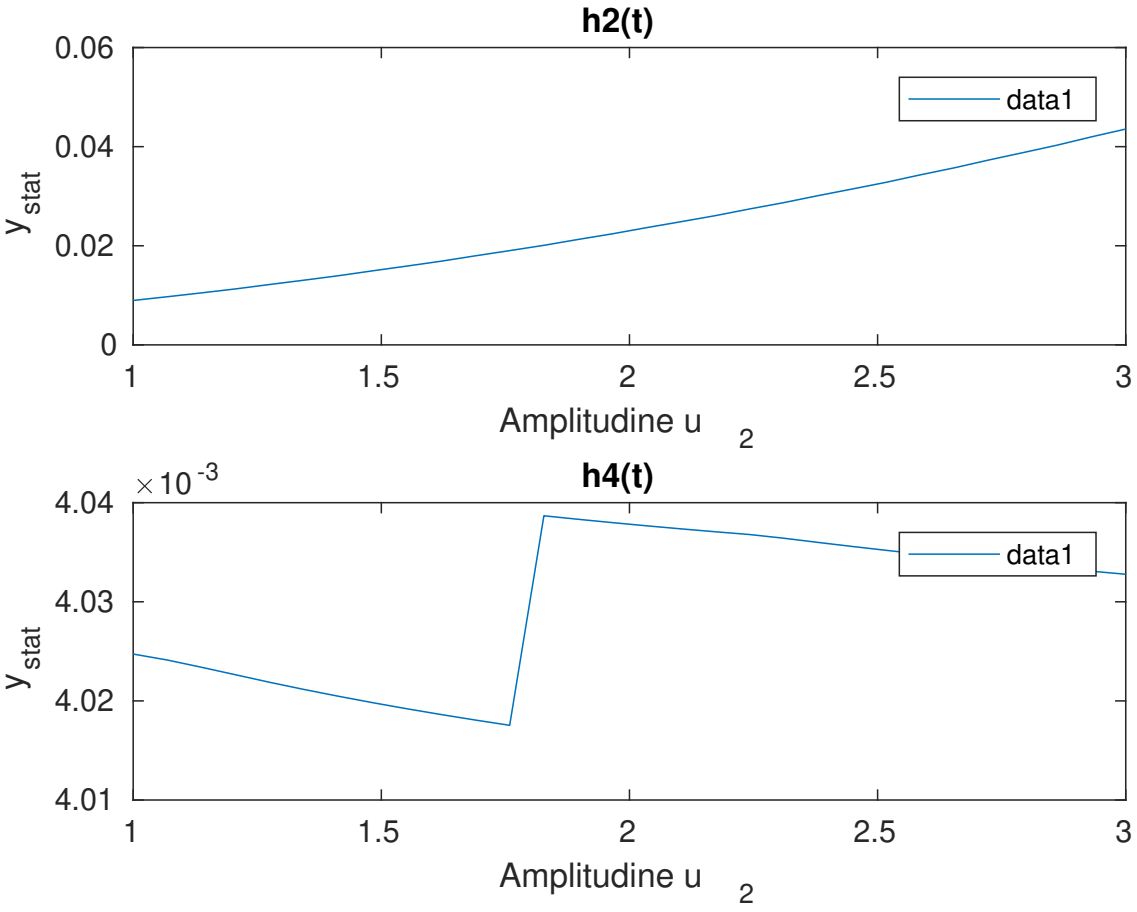



Figure 4: Evolutia iesirilor y2 si y4 in functie de valorile constantelor de integrare

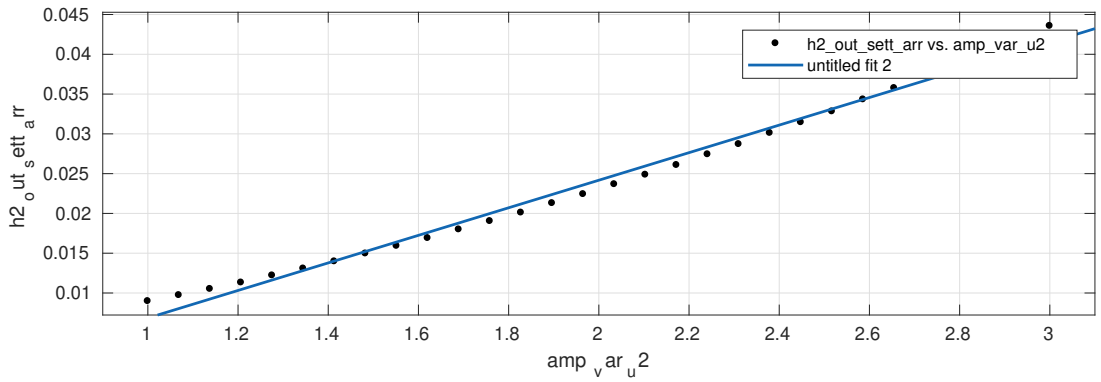



Figure 5: Stabilizare h2 in functie de amplitudinea intrarii

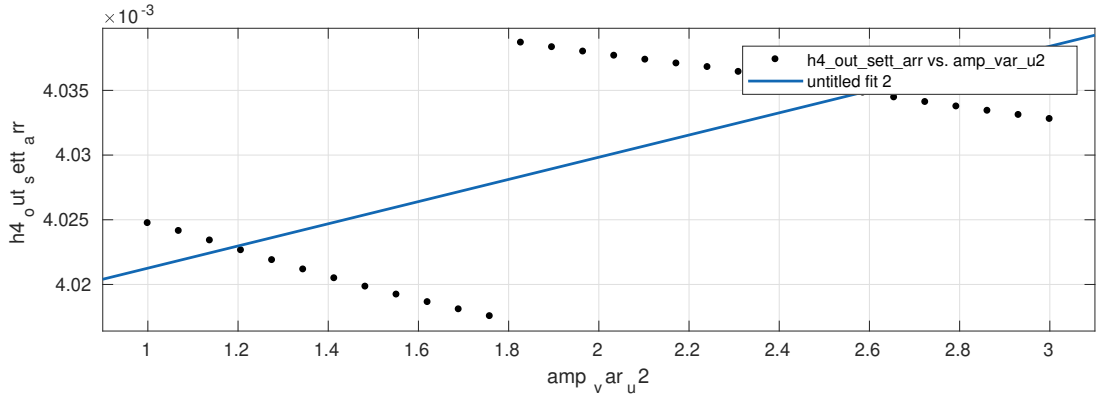



Figure 6: Stabilizare h4 in functie de amplitudinea intrarii

**Subpunctul d**

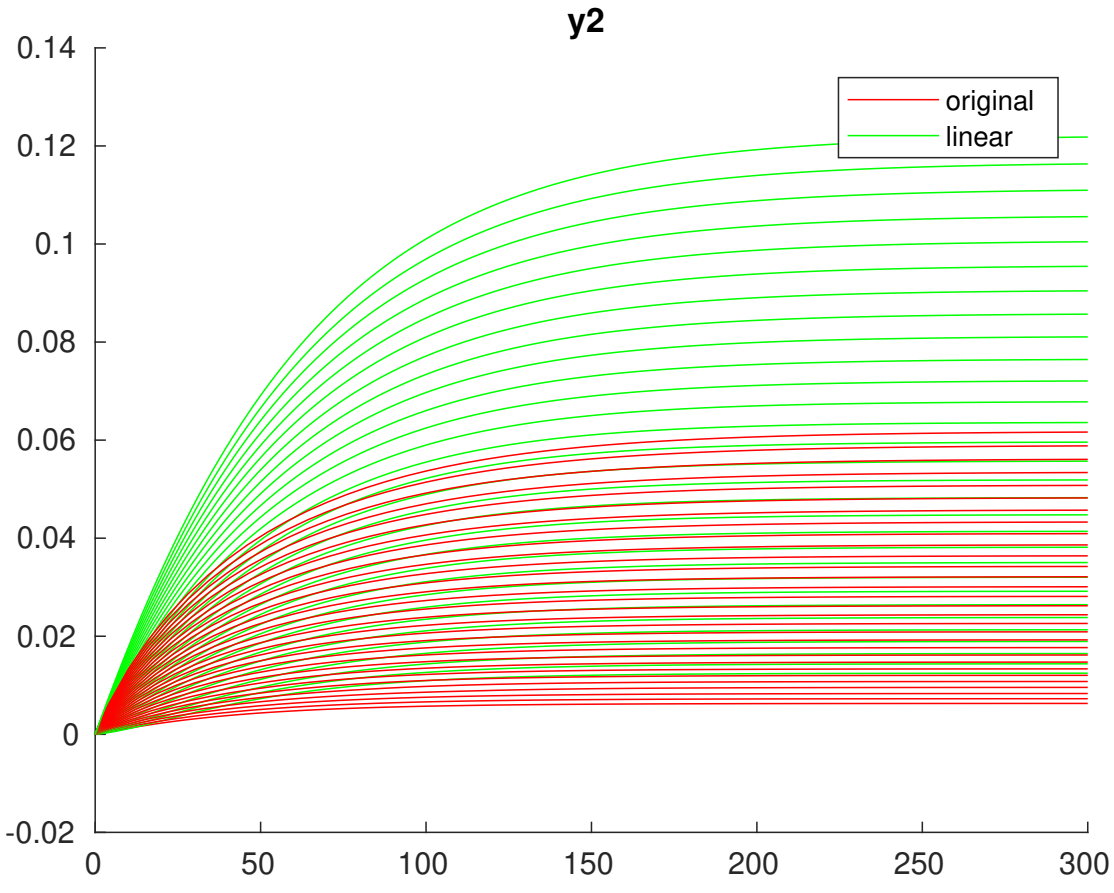



Figure 7: Evolutia iesirii h2 vs aproximarea sa liniara

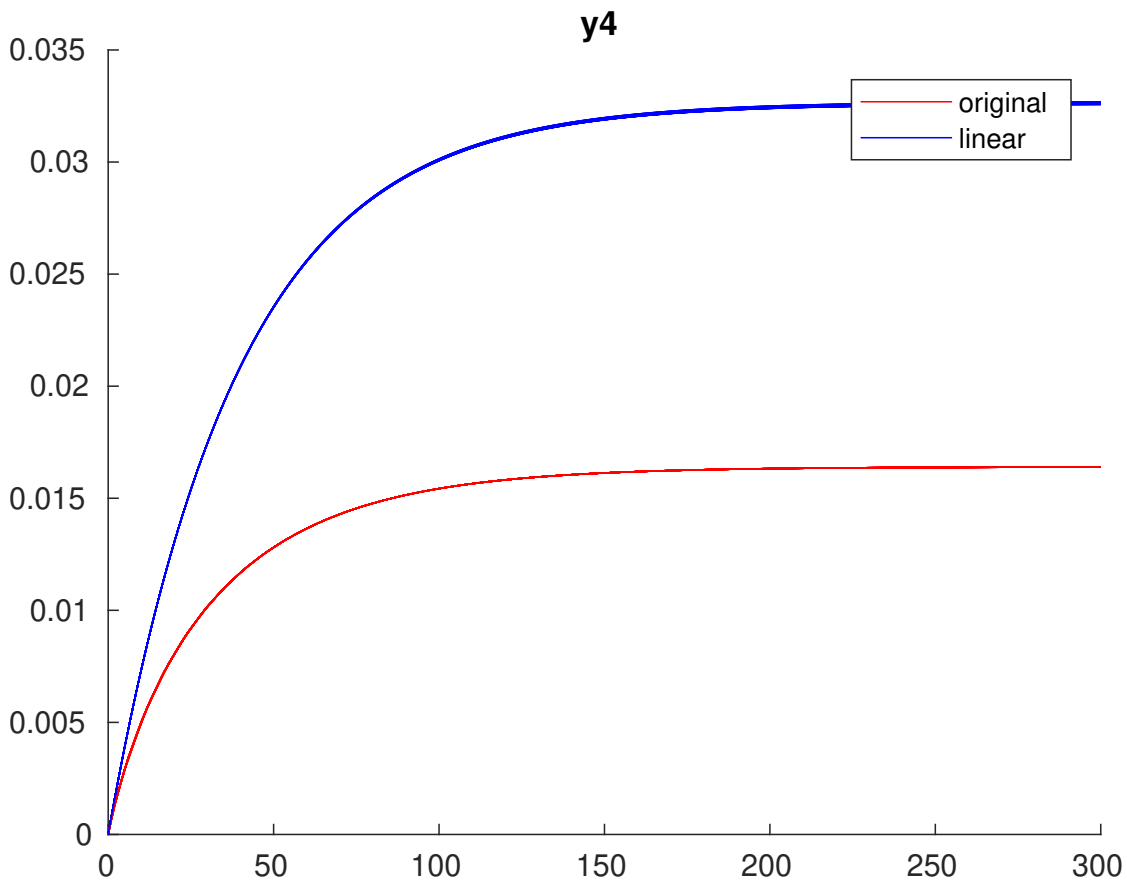



Figure 8: Evolutia iesirii h4 vs aproximarea sa liniara

**Subpunctul e**

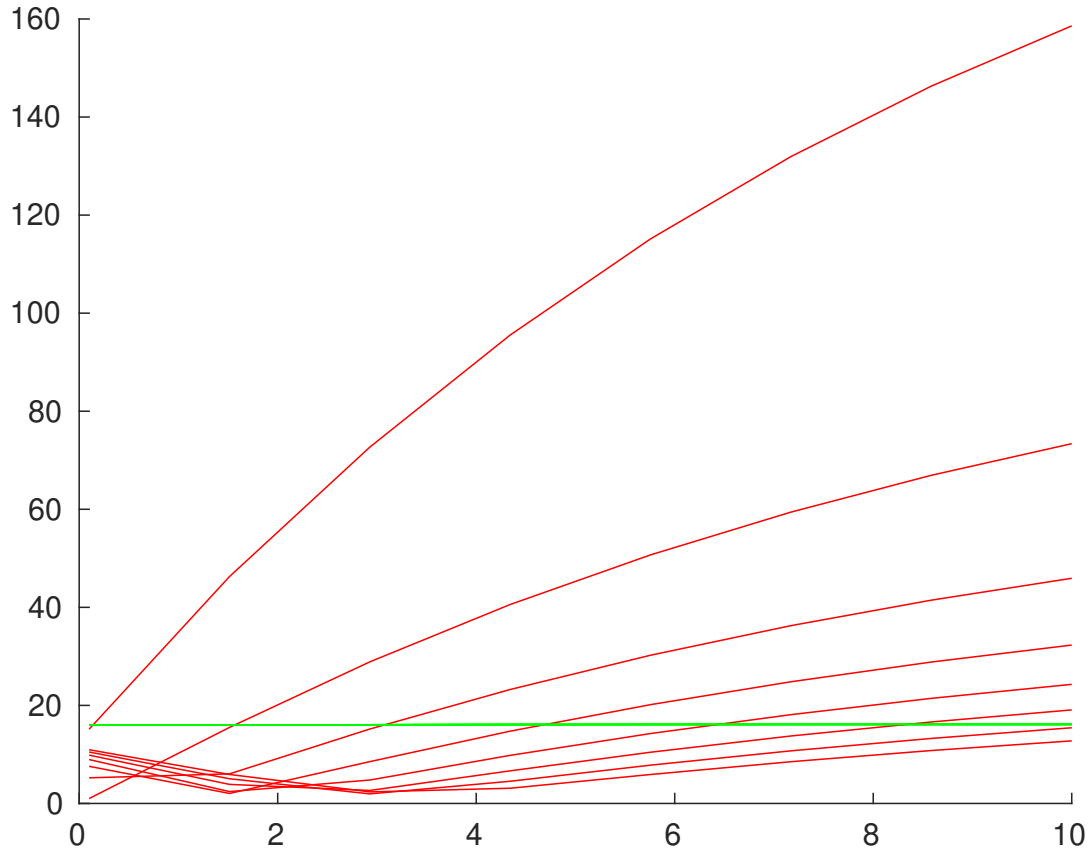



Figure 9: Graficele erorilor in functie de intrari

**Subpunctul f, g, h**

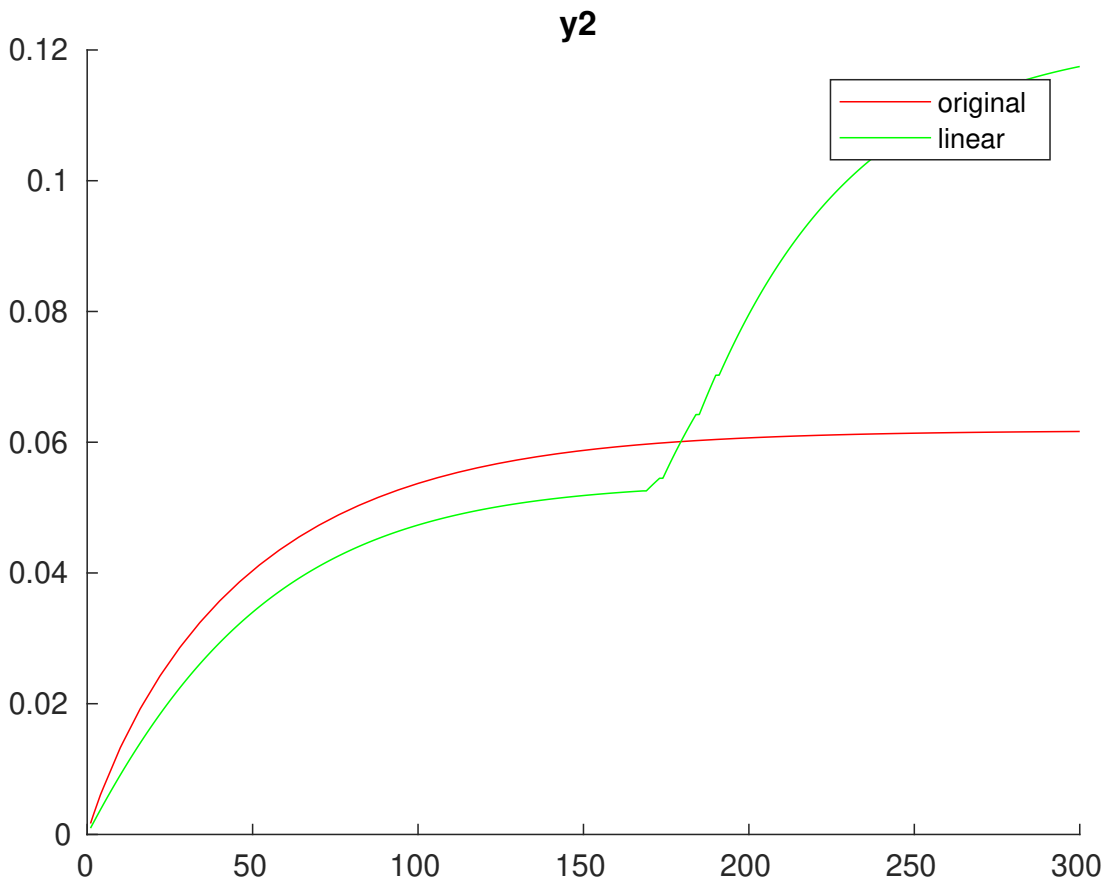



Figure 10: Evolutia iesirii h2 vs aproximarea sa liniara pe bucati

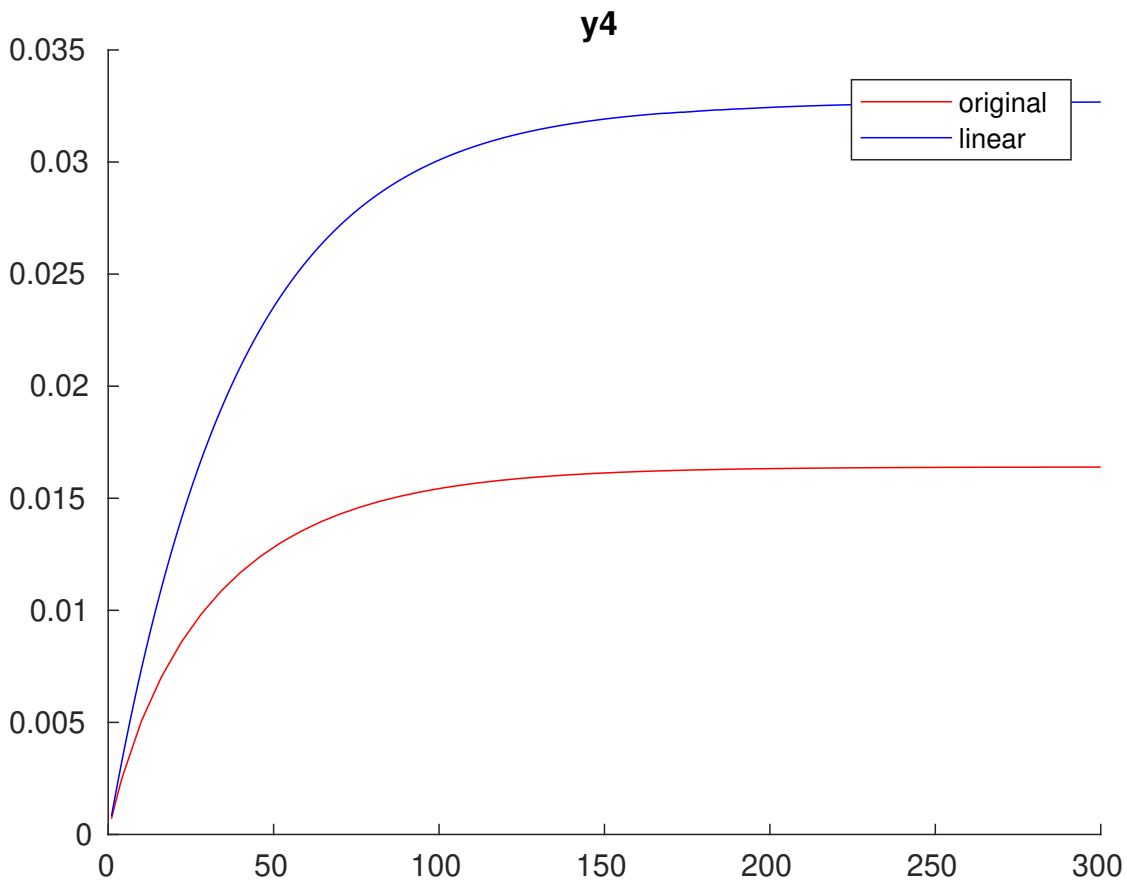
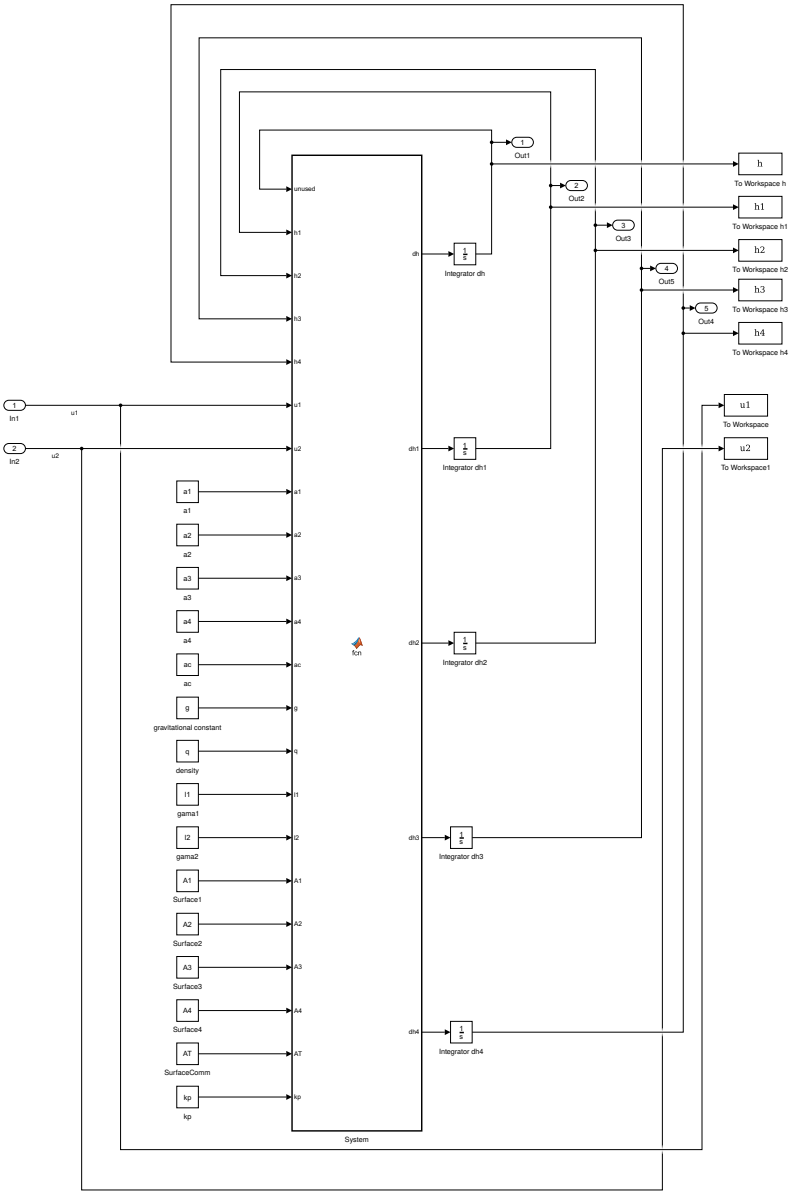



Figure 11: Evolutia iesirii h4 vs aproximarea sa liniara pe bucati


1
In1
u1
2
In2
u2
unused
h1
h2
h3
h4
u1
u2
a1
a2
a3
a4
ac
g
q
l1
l2
A1
A2
A3
A4
AT
kp
fcn
System
a1
a2
a3
a4
ac
gravitational constant
density
gama1
gama2
Surface1
Surface2
Surface3
Surface4
SurfaceComm
kp
dh
dh1
dh2
dh3
dh4
Integrator dh
Integrator dh1
Integrator dh2
Integrator dh3
Integrator dh4
1
Out1
2
Out2
3
Out3
4
Out5
5
Out4
h
To Workspace h
h1
To Workspace h1
h2
To Workspace h2
h3
To Workspace h3
h4
To Workspace h4
u1
To Workspace
u2
To Workspace1