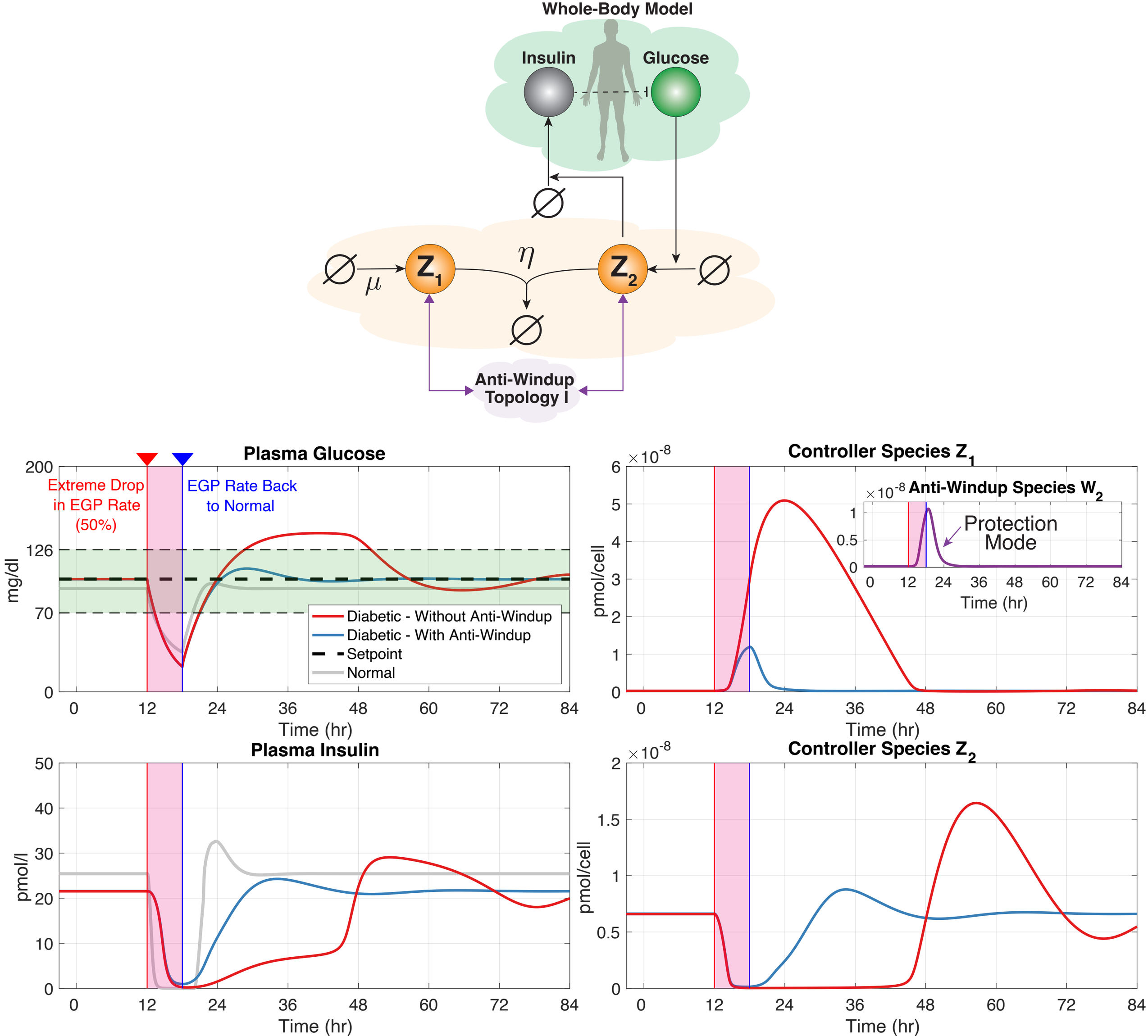
Whole-Body Model
Insulin
Glucose
∅
∅
μ
Z1
η
Z2
∅
∅
Anti-Windup
Topology I
Plasma Glucose
Extreme Drop
in EGP Rate
(50%)
EGP Rate Back
to Normal
mg/dl
200
126
70
0
Diabetic - Without Anti-Windup
Diabetic - With Anti-Windup
Setpoint
Normal
0 12 24 36 48 60 72 84
Time (hr)
Controller Species Z1
×10-8
pmol/cell
6
5
4
3
2
1
0
Anti-Windup Species W2
×10-8
1
0.5
0
Protection
Mode
0 12 24 36 48 60 72 84
Time (hr)
Plasma Insulin
pmol/l
50
40
30
20
10
0
0 12 24 36 48 60 72 84
Time (hr)
Controller Species Z2
×10-8
pmol/cell
2
1.5
1
0.5
0
0 12 24 36 48 60 72 84
Time (hr)