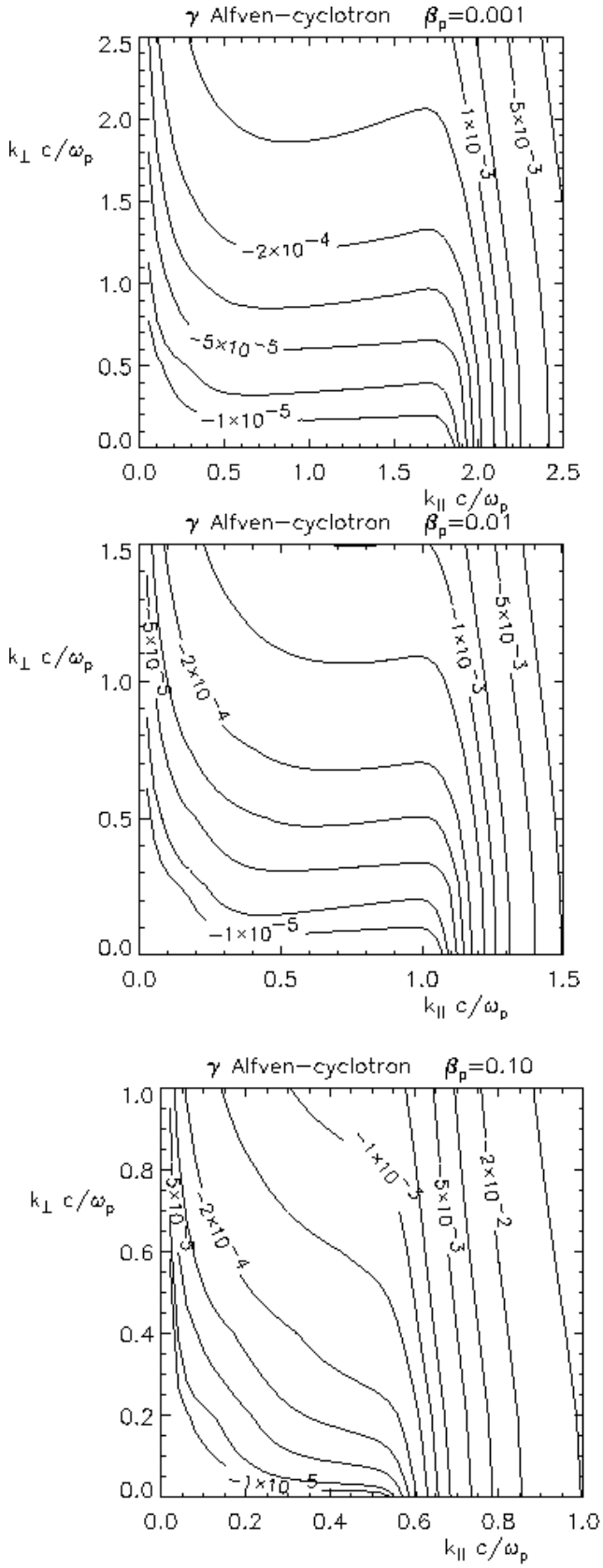

γ Alfven−cyclotron β_p=0.001
k⊥ c/ω_p
k∥ c/ω_p
−1×10^−3
−5×10^−3
−2×10^−4
−5×10^−5
−1×10^−5
γ Alfven−cyclotron β_p=0.01
k⊥ c/ω_p
k∥ c/ω_p
−5×10^−5
−2×10^−4
−1×10^−3
−5×10^−3
−1×10^−5
γ Alfven−cyclotron β_p=0.10
k⊥ c/ω_p
k∥ c/ω_p
−1×10^−3
−5×10^−3
−2×10^−2
−2×10^−4
−1×10^−5

Figure 1a, b, c

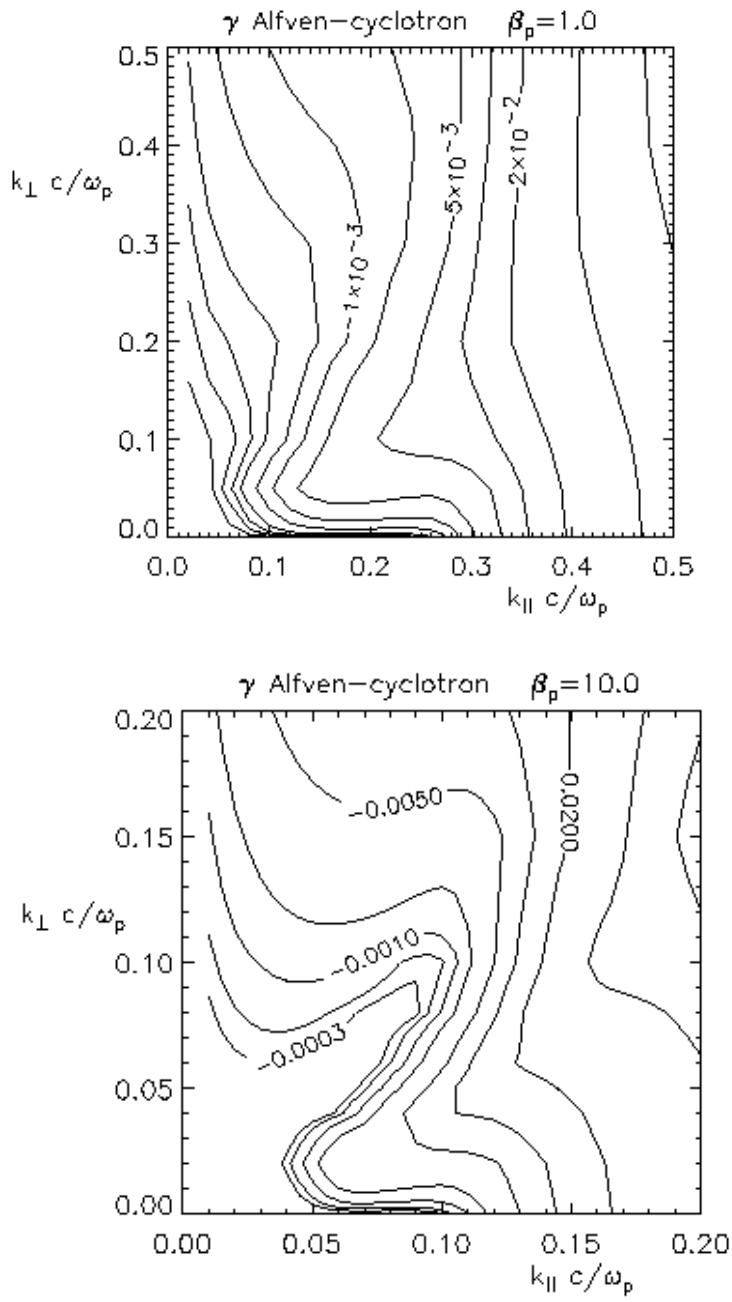
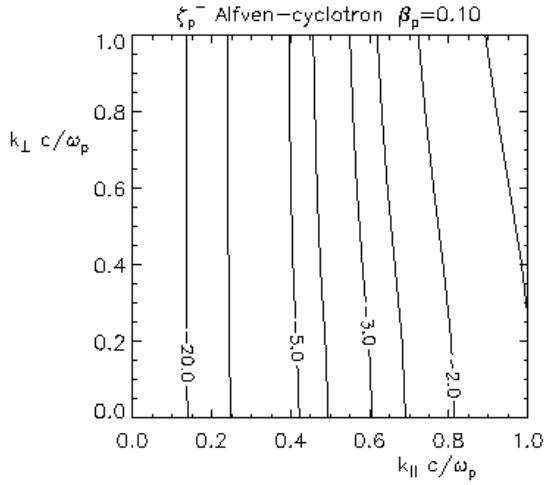
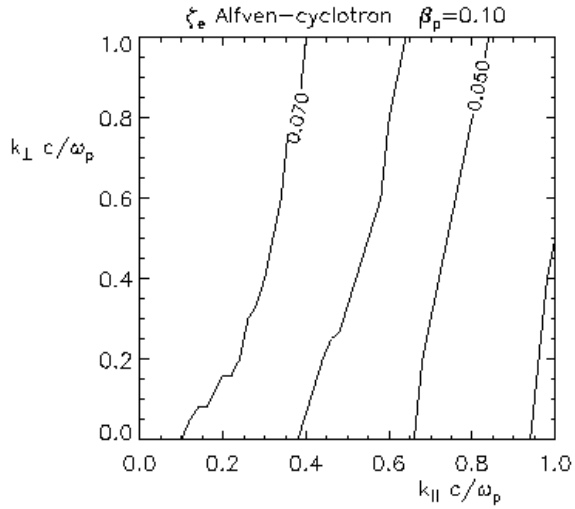

γ Alfven−cyclotron βp=1.0
1×10^−3
5×10^−3
2×10^−2
k⊥ c/ωp
k∥ c/ωp
γ Alfven−cyclotron βp=10.0
−0.0050
0.0200
−0.0010
−0.0003
k⊥ c/ωp
k∥ c/ωp

Figure 1d,e


ζ_p^- Alfven−cyclotron β_p=0.10
$k_\perp c/\omega_p$
$k_\parallel c/\omega_p$
20.0
5.0
3.0
2.0


ζ_e Alfven−cyclotron β_p=0.10
$k_\perp c/\omega_p$
$k_\parallel c/\omega_p$
0.070
0.050

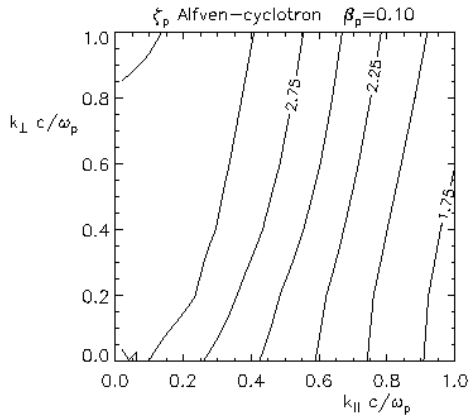

ζ_p Alfven−cyclotron β_p=0.10
$k_\perp c/\omega_p$
$k_\parallel c/\omega_p$
2.75
2.25
1.75

Figure 2

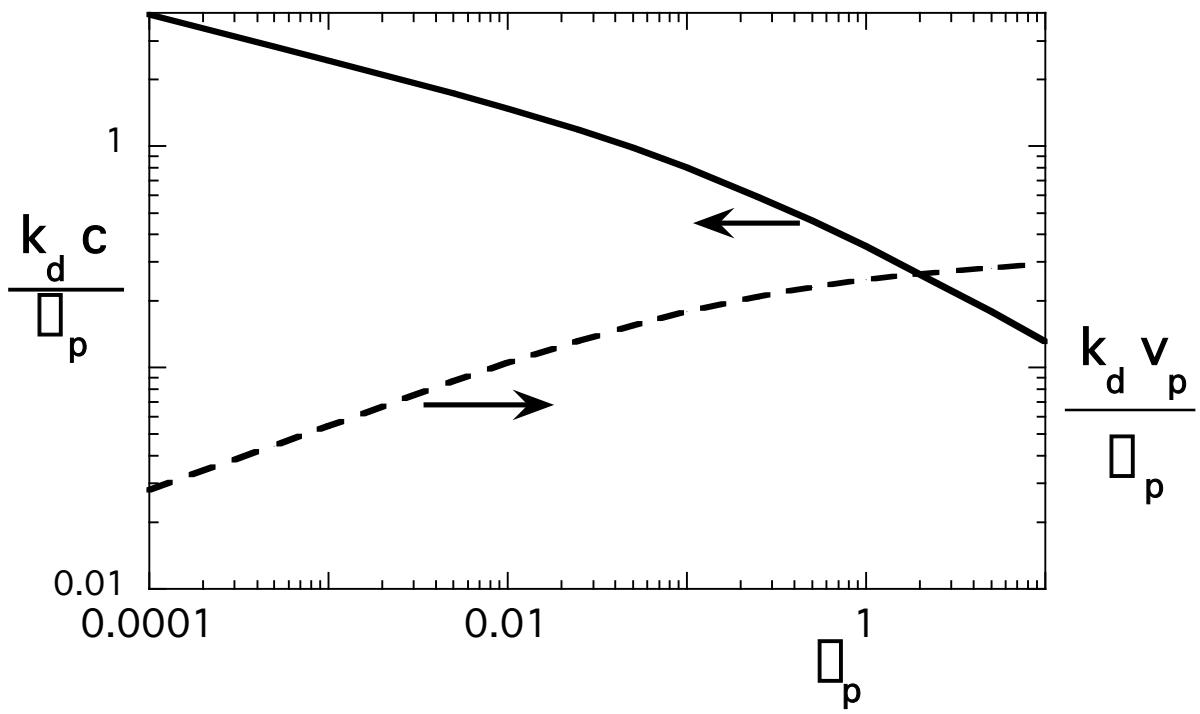
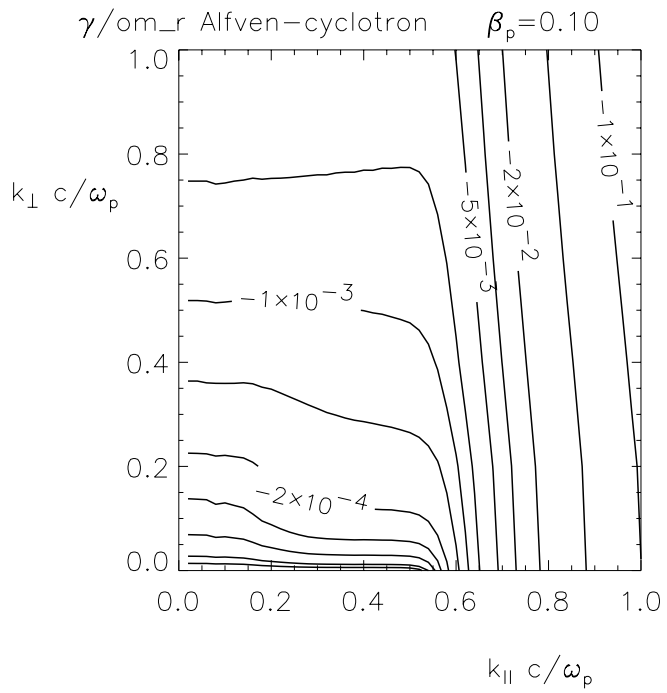


Figure 3


γ/om_r Alfven−cyclotron
βp=0.10
1.0
0.8
0.6
0.4
0.2
0.0
k⊥ c/ωp
0.0
0.2
0.4
0.6
0.8
1.0
k∥ c/ωp
−1×10−1
−2×10−2
−5×10−3
−1×10−3
−2×10−4

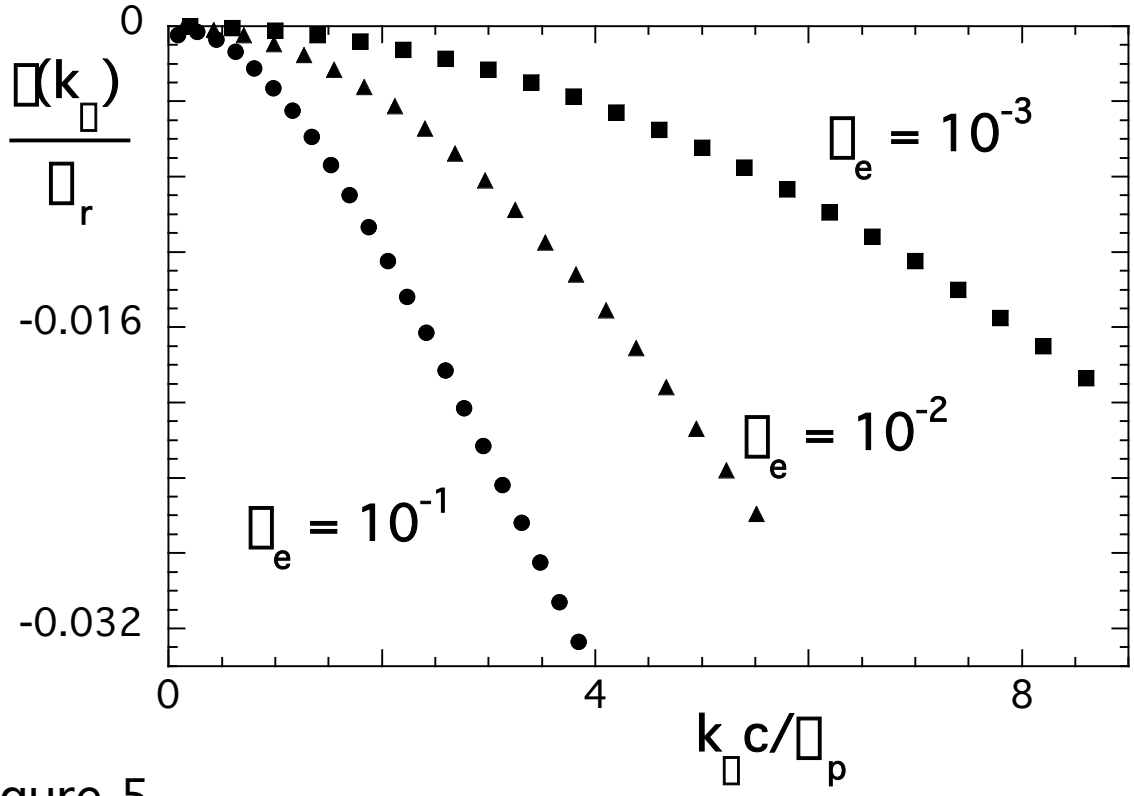

0
-0.016
-0.032
0
4
8
$\Phi(k_\parallel)/\Phi_r$
$k_\parallel c/\omega_p$
$\Omega_e = 10^{-3}$
$\Omega_e = 10^{-2}$
$\Omega_e = 10^{-1}$

Figure 5

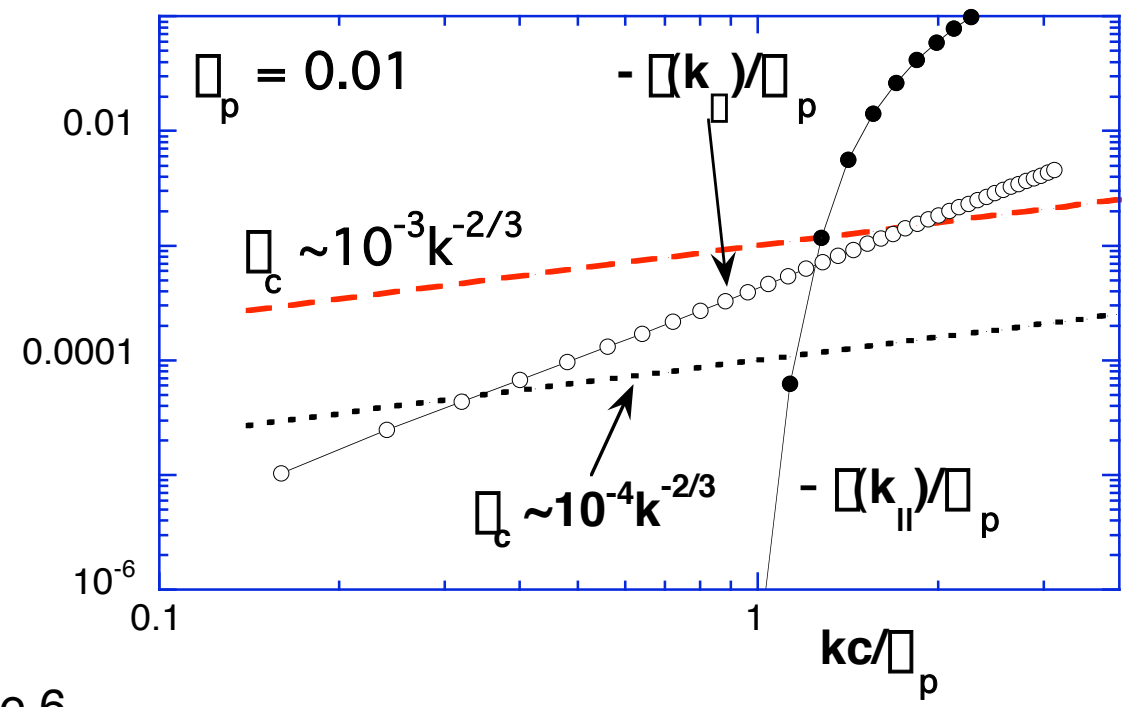


Figure 6

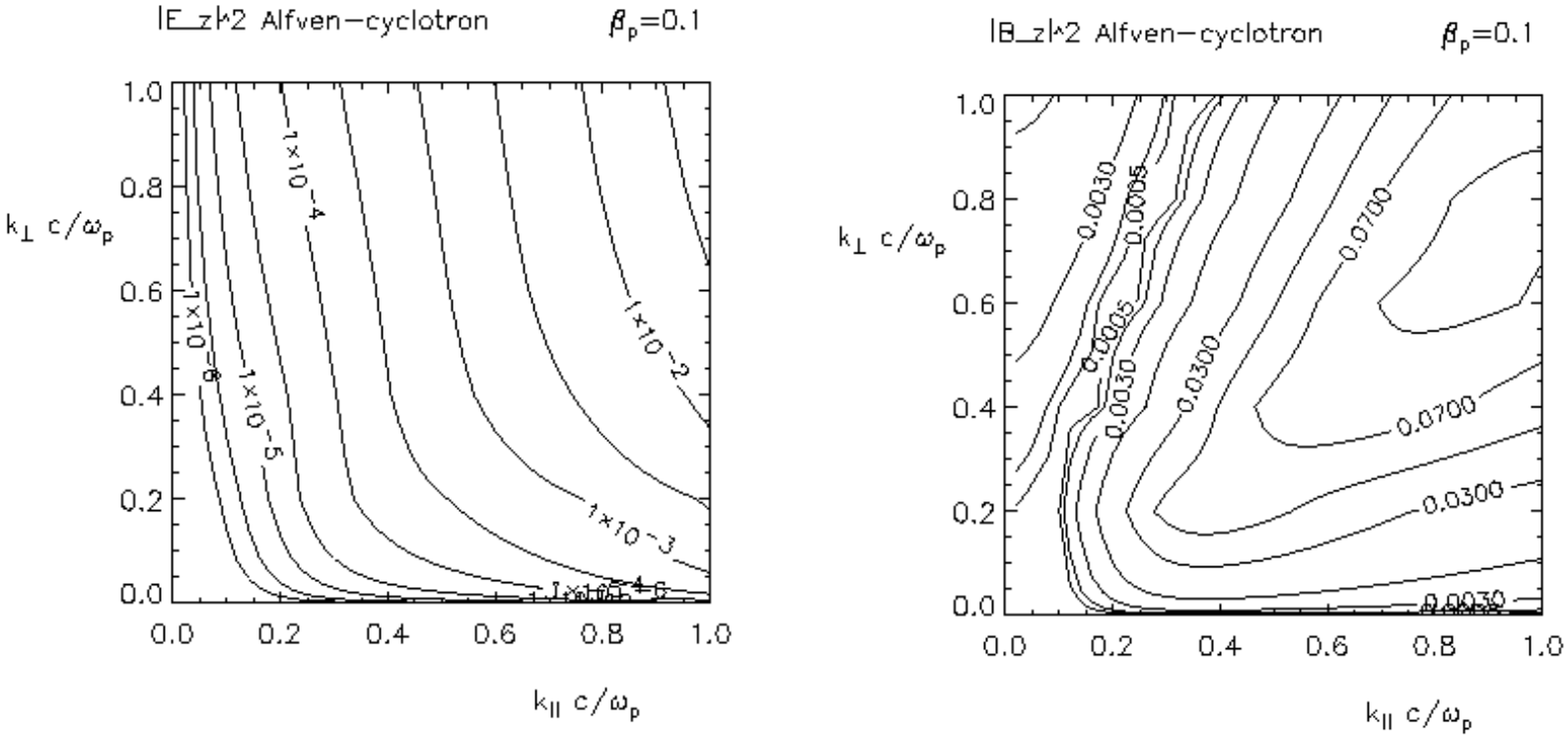

|E_z|^2 Alfven−cyclotron
β_p=0.1
$k_\perp c/\omega_p$
$k_{\parallel} c/\omega_p$
1×10^−4
1×10^−2
1×10^−3
1×10^−5
1×10^−6
|B_z|^2 Alfven−cyclotron
β_p=0.1
$k_\perp c/\omega_p$
$k_{\parallel} c/\omega_p$
0.0030
0.0005
0.0700
0.0300

Figure 7

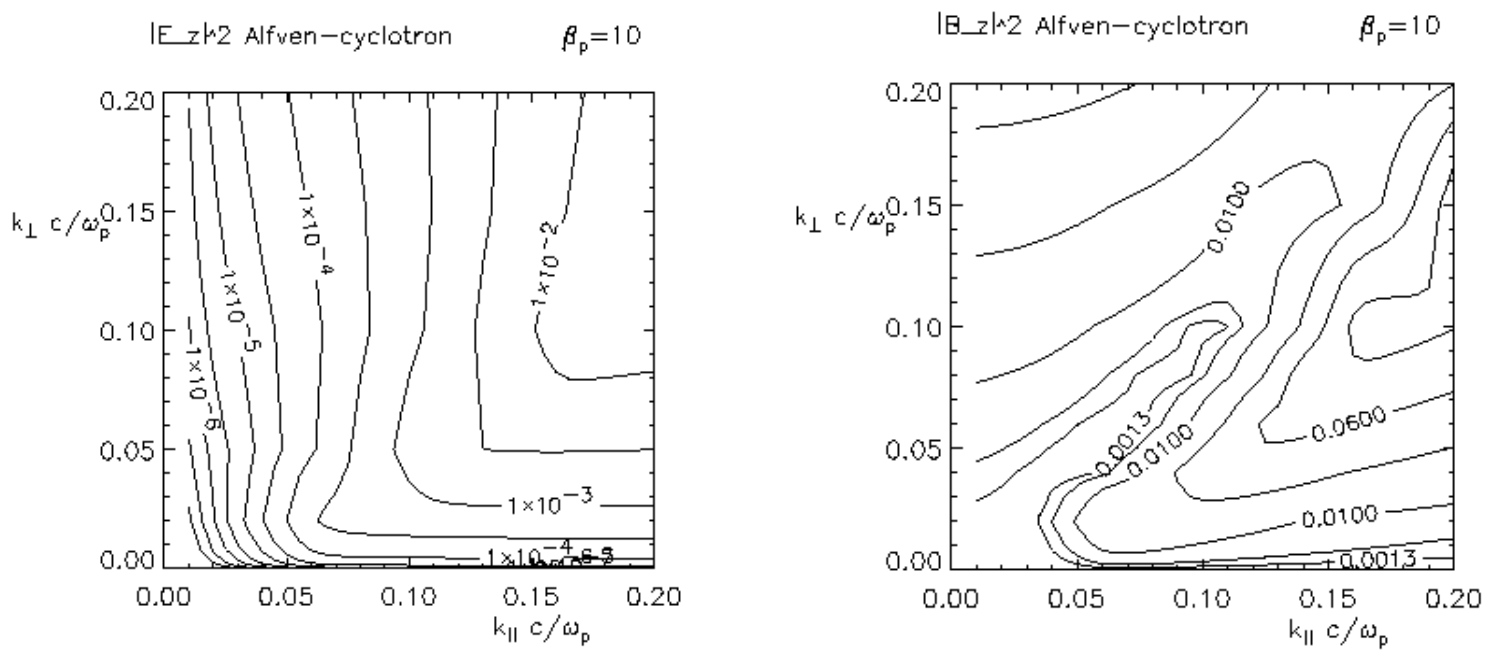

|E_z|^2 Alfven−cyclotron
β_p=10
$k_\perp c/\omega_p$
$k_\parallel c/\omega_p$
0.00
0.05
0.10
0.15
0.20
1×10^{-6}
1×10^{-5}
1×10^{-4}
1×10^{-3}
1×10^{-2}
|B_z|^2 Alfven−cyclotron
β_p=10
$k_\perp c/\omega_p$
$k_\parallel c/\omega_p$
0.0100
0.0013
0.0600

Figure 8

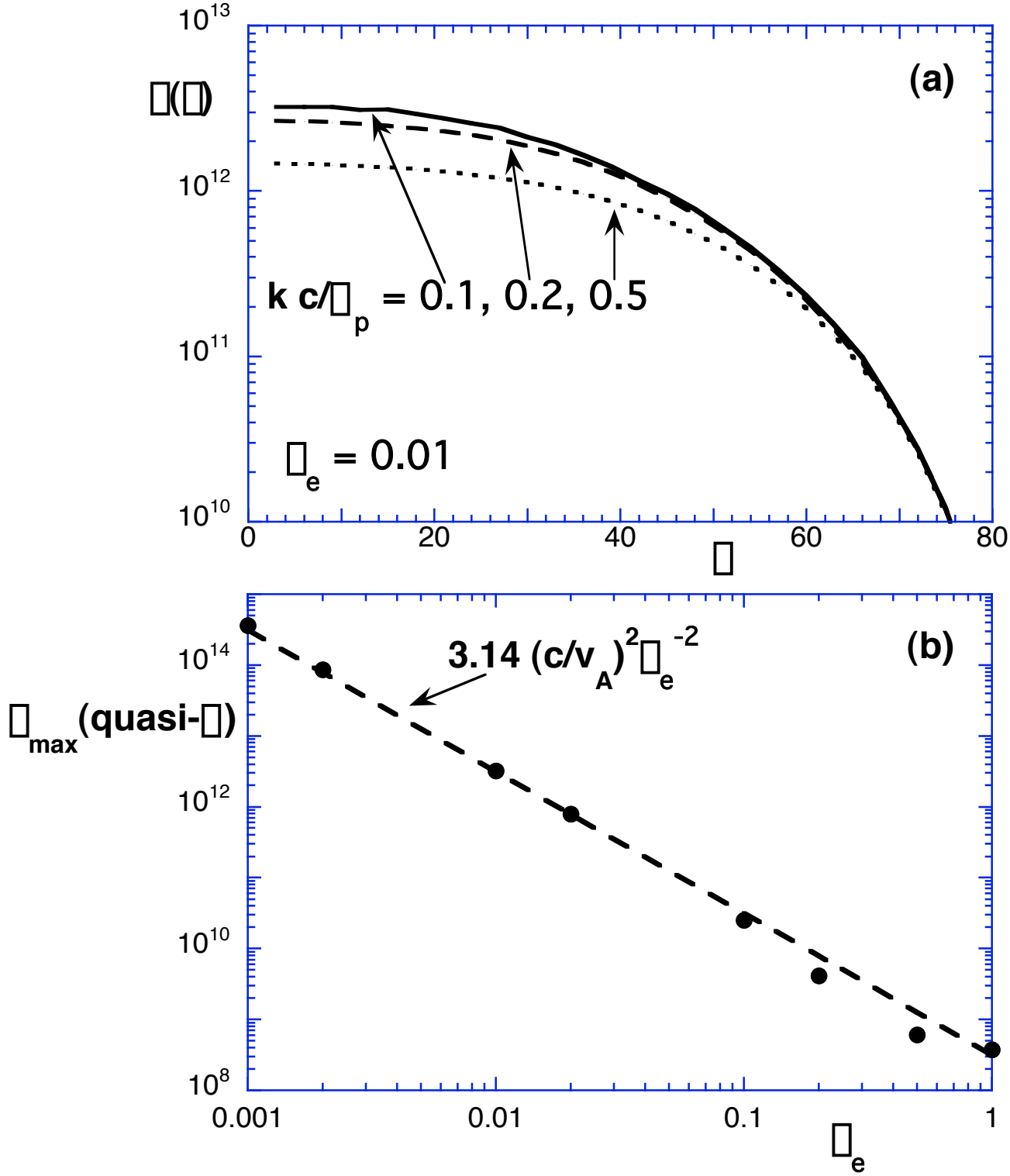


Figure 9

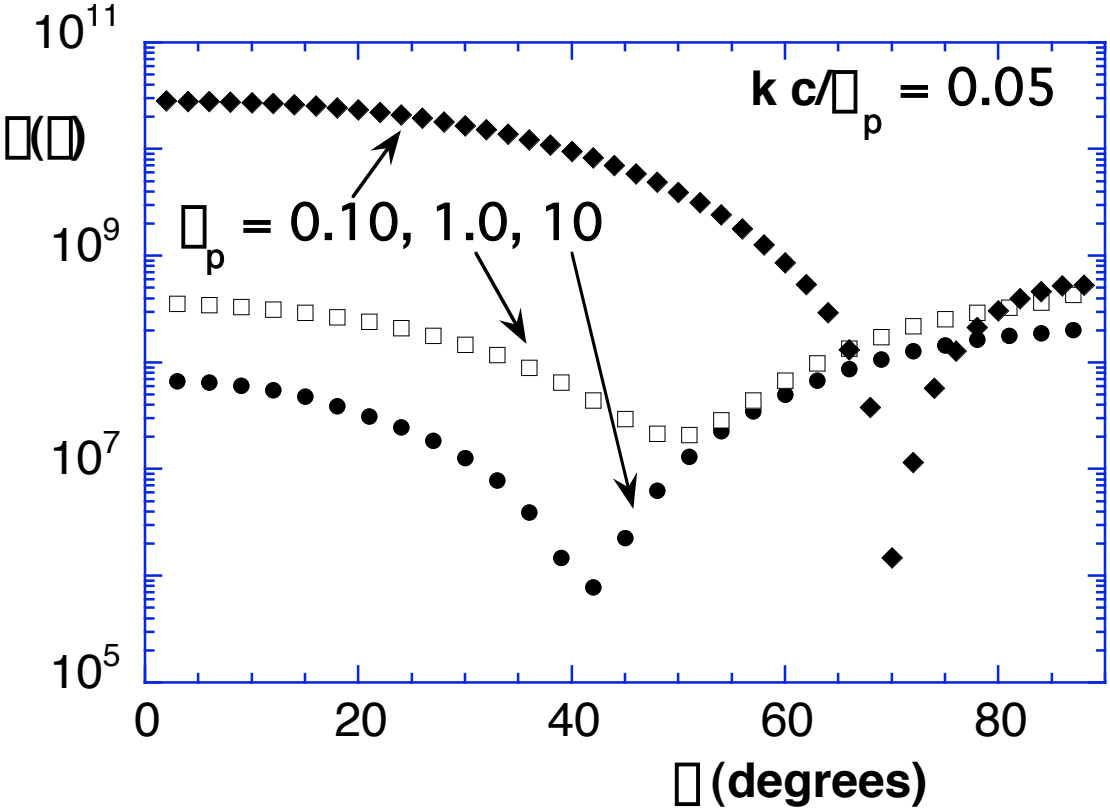


Figure 10

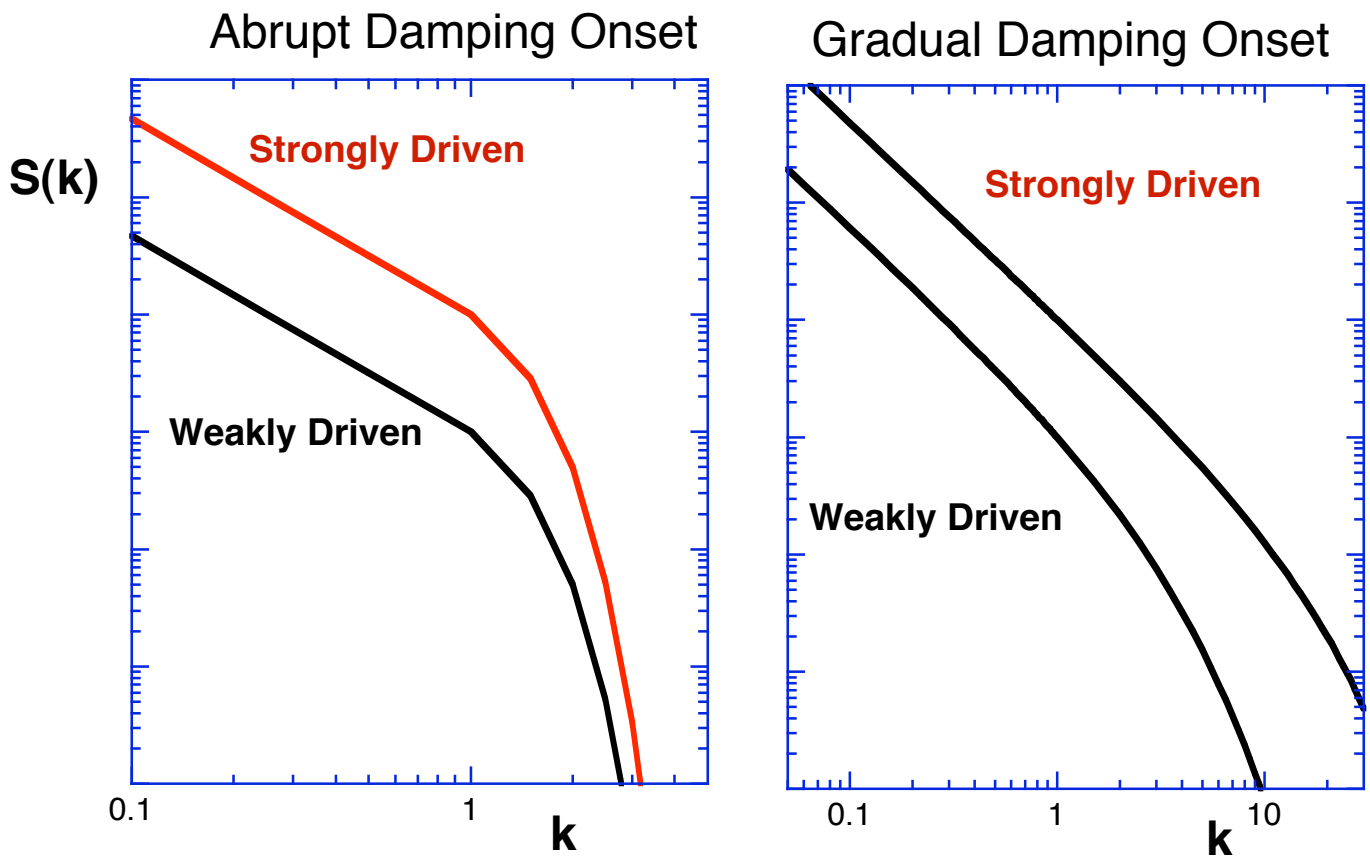

Abrupt Damping Onset
Gradual Damping Onset
S(k)
Strongly Driven
Weakly Driven
Strongly Driven
Weakly Driven
0.1
1
k
0.1
1
10
k

Figure 11