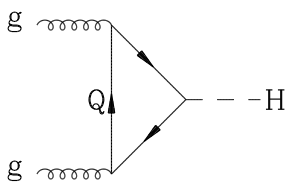


Fig. 1a

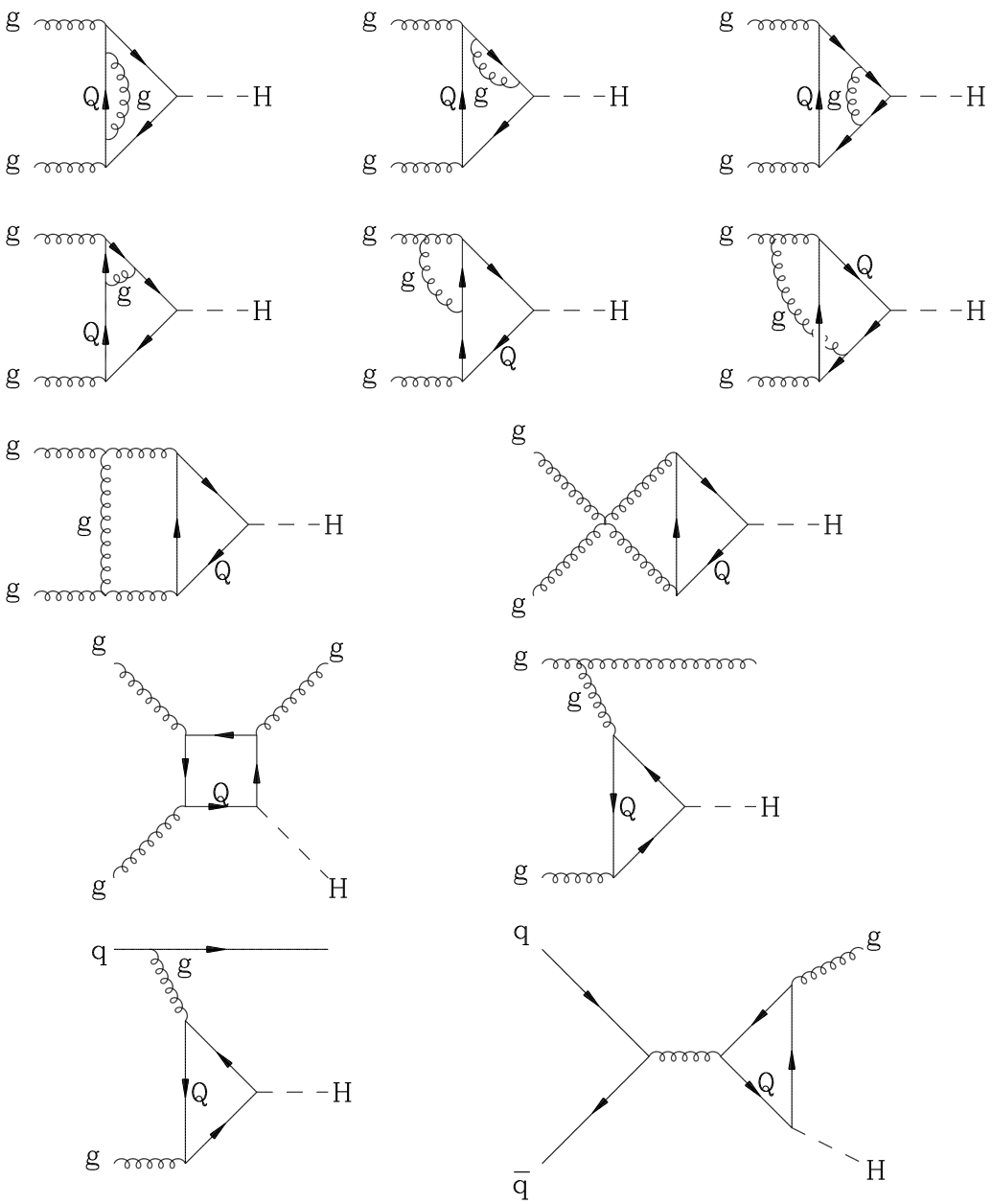
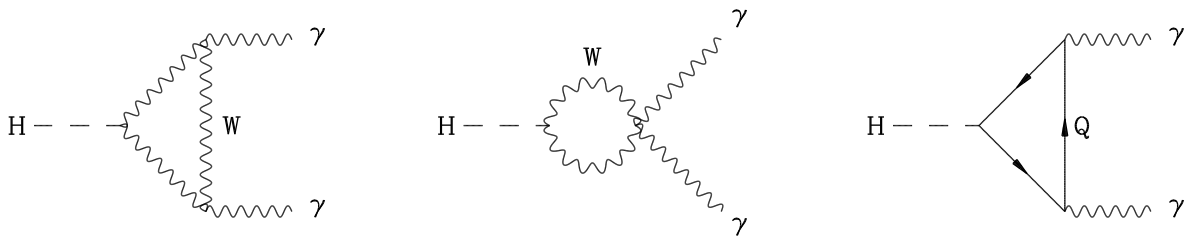


Fig. 1b



(a) (b)

Fig. 2

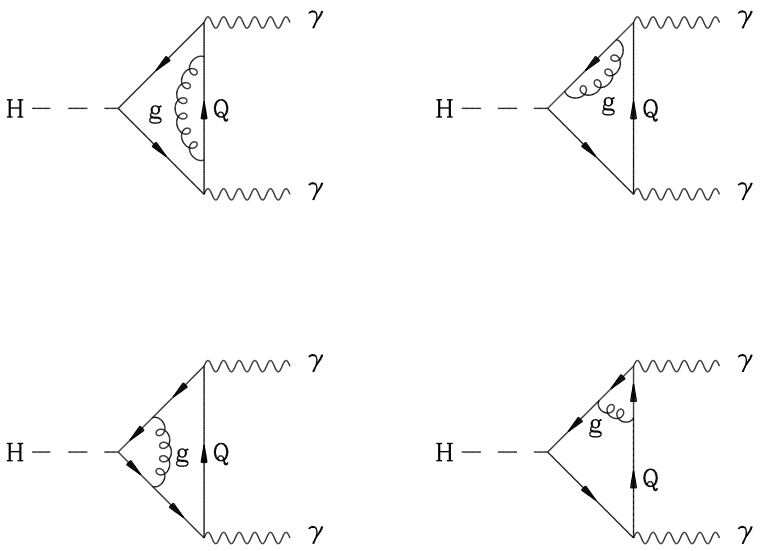


Fig. 2c

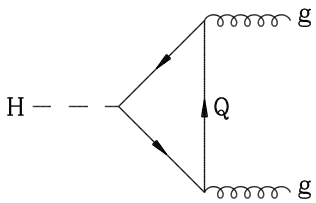


Fig. 3a

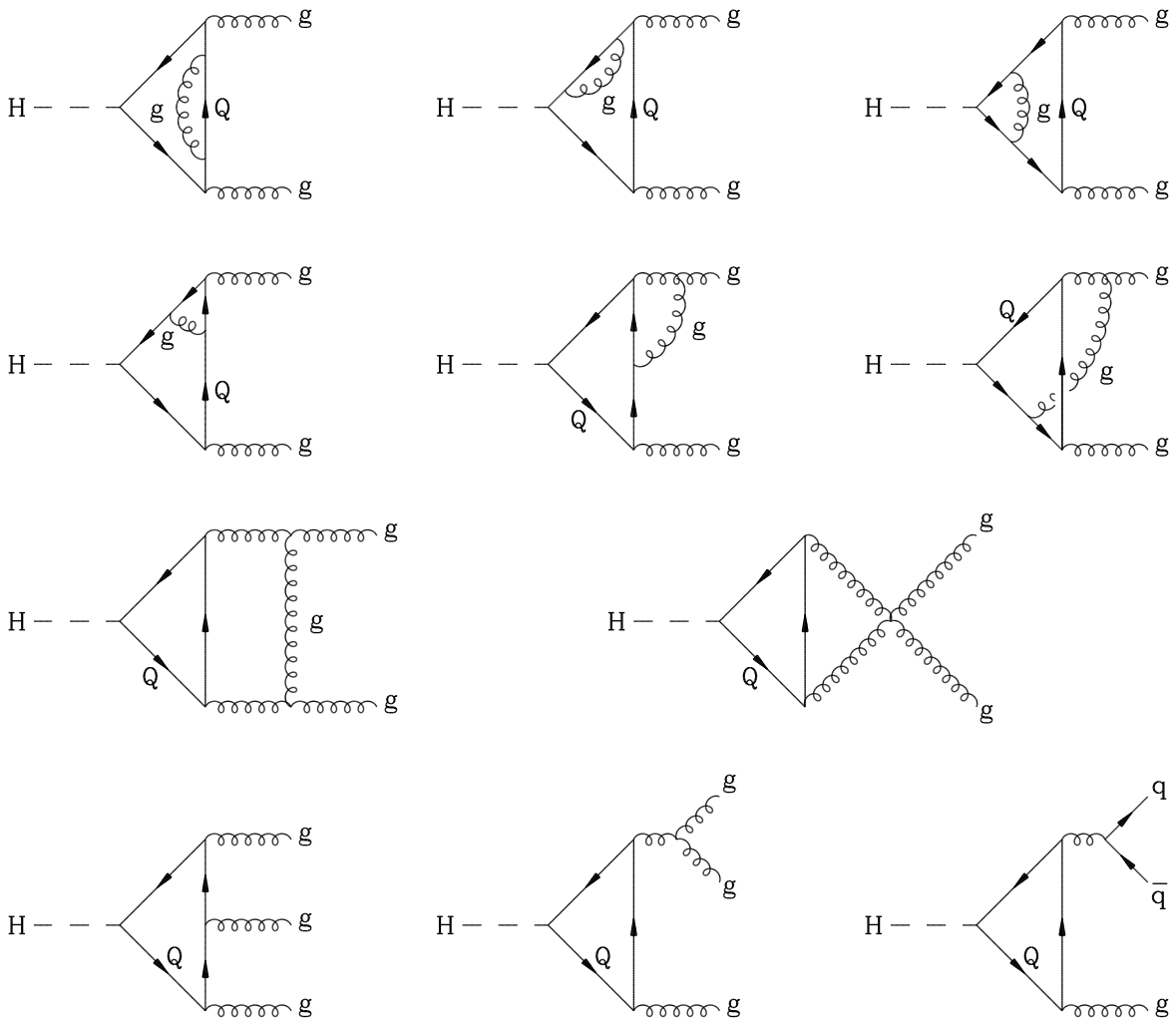


Fig. 3b

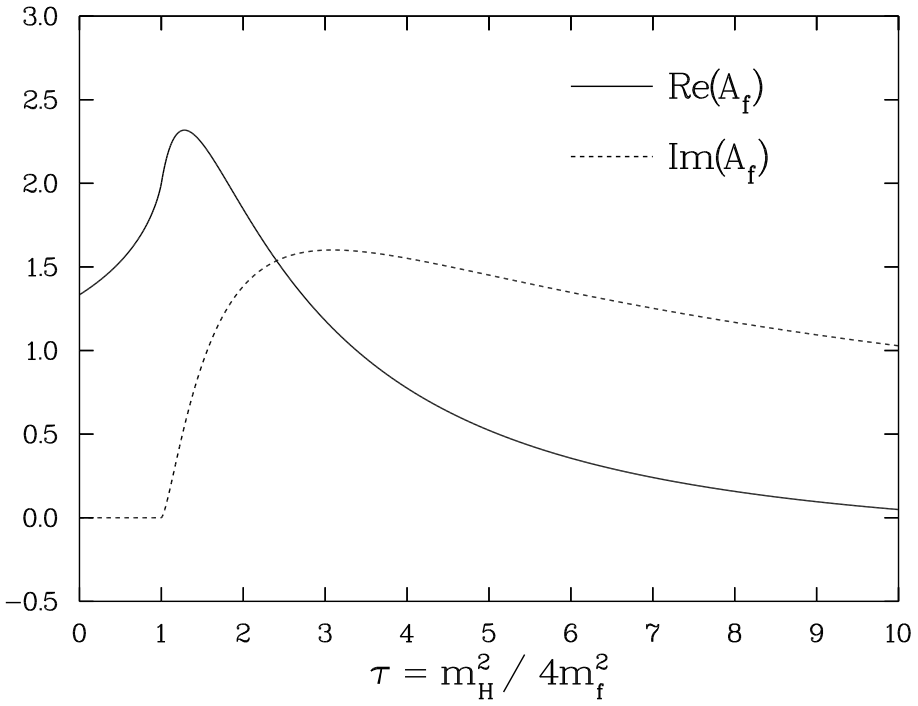

3.0
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
0
1
2
3
4
5
6
7
8
9
10
Re(A_f)
Im(A_f)
τ = m_H^2 / 4m_f^2

Fig. 4a

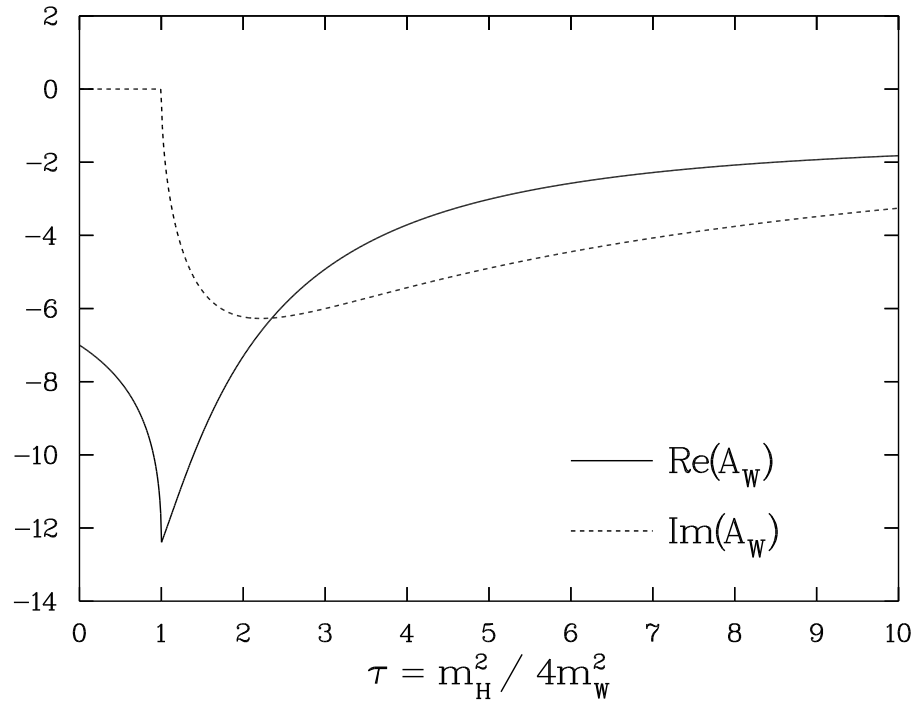

2
0
−2
−4
−6
−8
−10
−12
−14
0
1
2
3
4
5
6
7
8
9
10
Re(A_W)
Im(A_W)
τ = m_H^2 / 4m_W^2

Fig. 4b

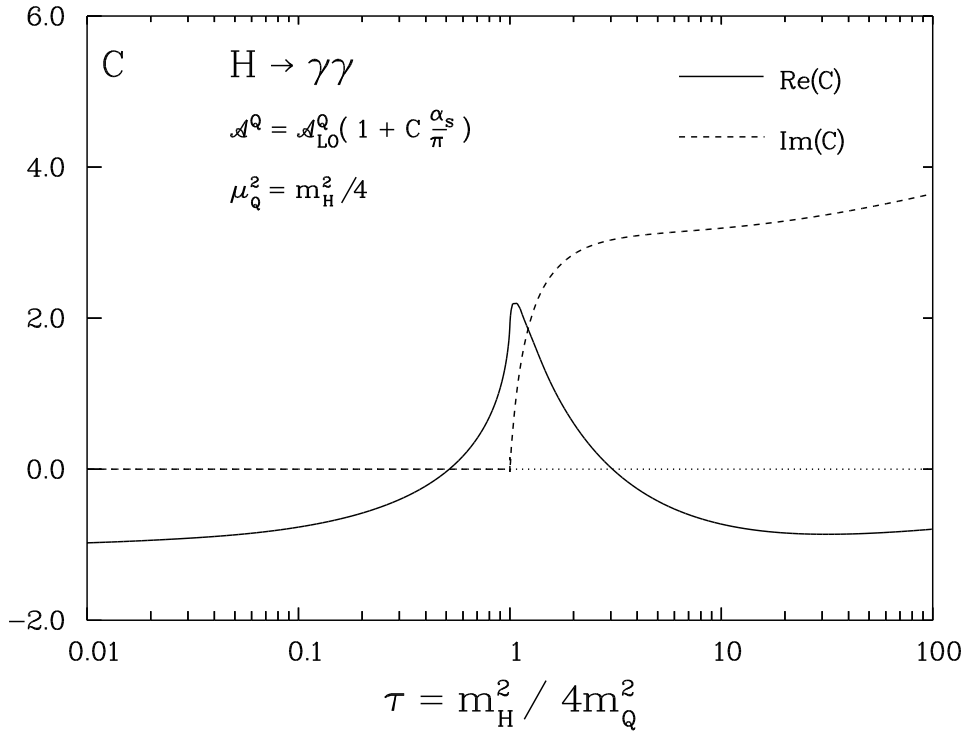

C
H → γγ
$\mathcal{A}^Q = \mathcal{A}^Q_{LO}(1 + C \frac{\alpha_s}{\pi})$
$\mu_Q^2 = m_H^2/4$
Re(C)
Im(C)
6.0
4.0
2.0
0.0
−2.0
0.01
0.1
1
10
100
$\tau = m_H^2 / 4m_Q^2$

Fig. 5a

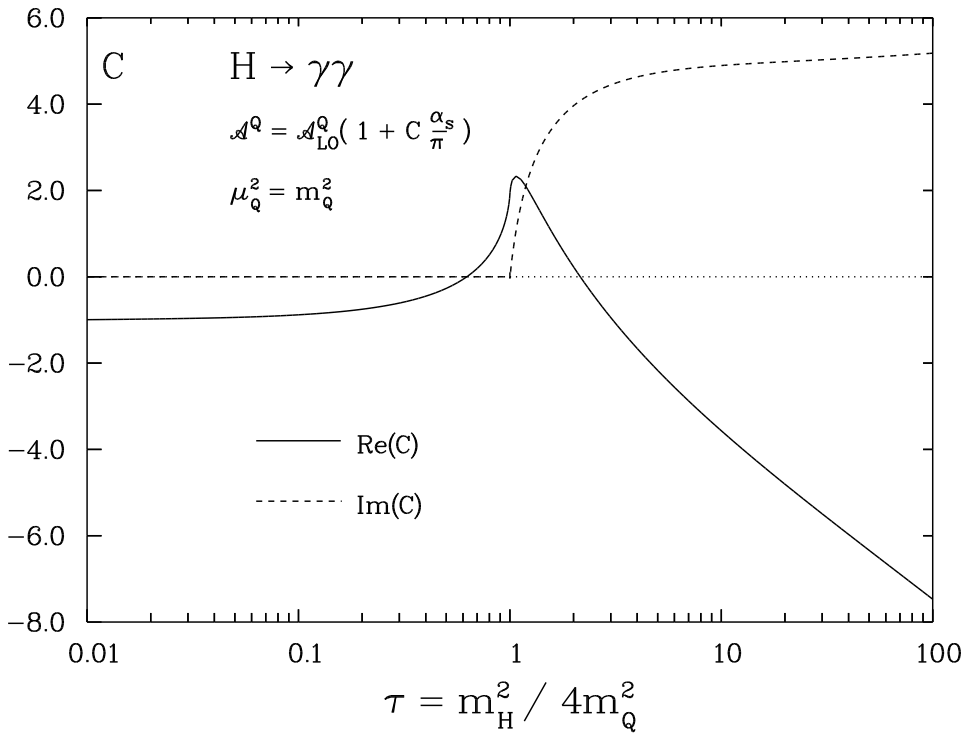

C
H → γγ
$\mathcal{A}^Q = \mathcal{A}^Q_{LO}(1 + C \frac{\alpha_s}{\pi})$
$\mu_Q^2 = m_Q^2$
Re(C)
Im(C)
6.0
4.0
2.0
0.0
−2.0
−4.0
−6.0
−8.0
0.01
0.1
1
10
100
$\tau = m_H^2 / 4m_Q^2$

Fig. 5b

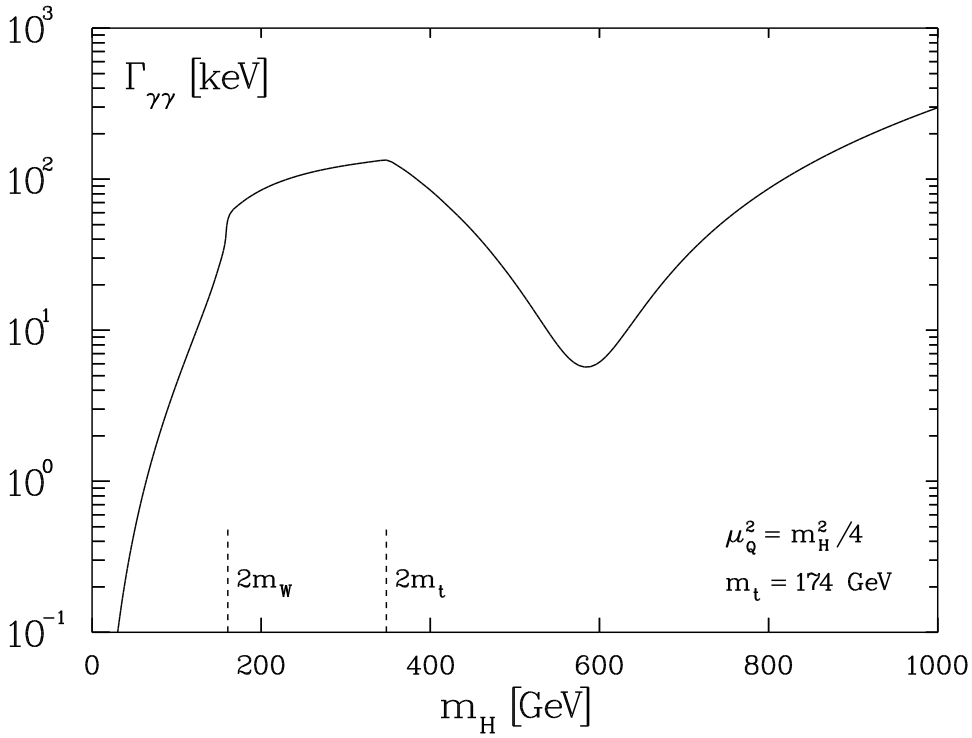

10^3
10^2
10^1
10^0
10^{-1}
$\Gamma_{\gamma\gamma}$ [keV]
$2m_W$
$2m_t$
$\mu_Q^2 = m_H^2/4$
m_t = 174 GeV
0
200
400
600
800
1000
m_H [GeV]

Fig. 6a

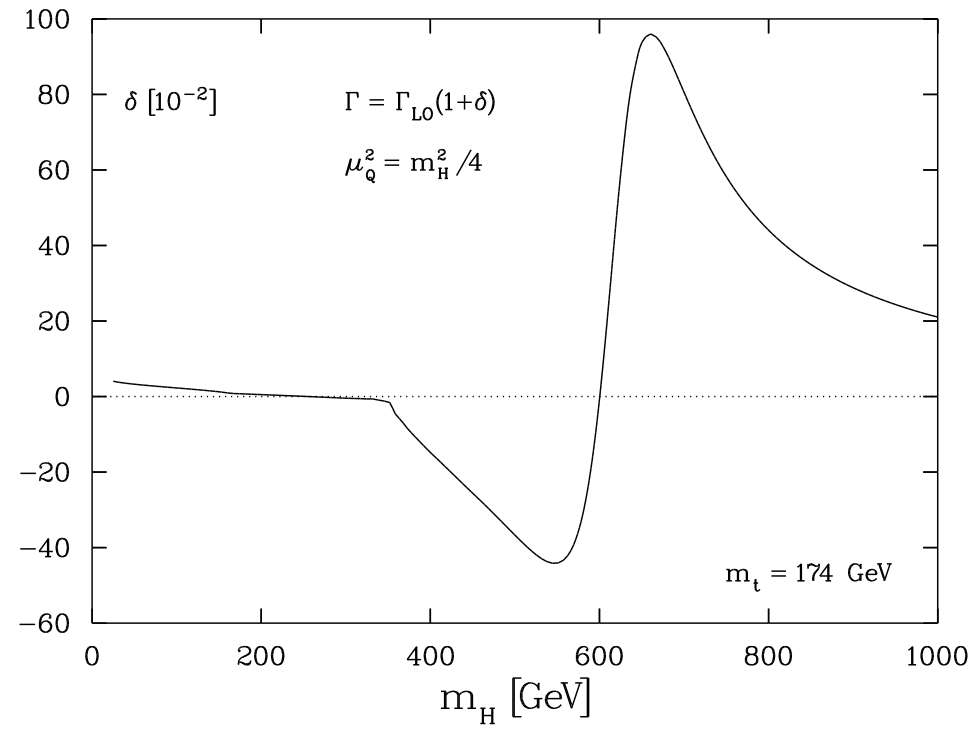

100
80
60
40
20
0
−20
−40
−60
δ [10^{-2}]
$\Gamma = \Gamma_{LO}(1+\delta)$
$\mu_Q^2 = m_H^2/4$
m_t = 174 GeV
0
200
400
600
800
1000
m_H [GeV]

Fig. 6b

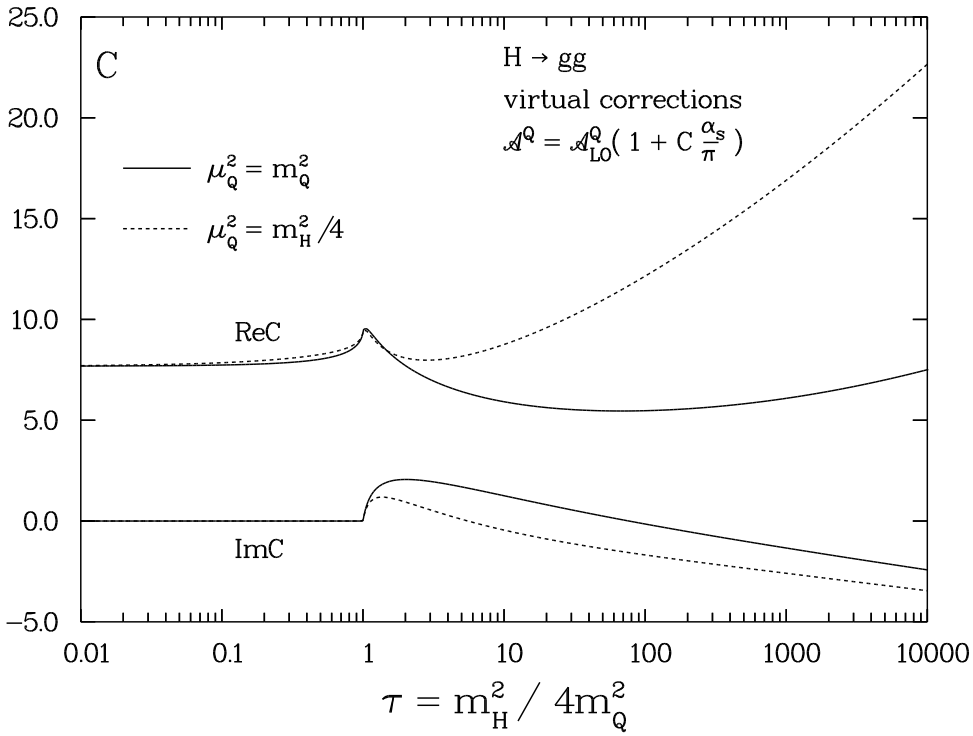

C
H → gg
virtual corrections
$\mathcal{A}^Q = \mathcal{A}^Q_{LO}(1 + C \frac{\alpha_s}{\pi})$
$\mu_Q^2 = m_Q^2$
$\mu_Q^2 = m_H^2/4$
ReC
ImC
25.0
20.0
15.0
10.0
5.0
0.0
−5.0
0.01
0.1
1
10
100
1000
10000
$\tau = m_H^2 / 4m_Q^2$

Fig. 7a

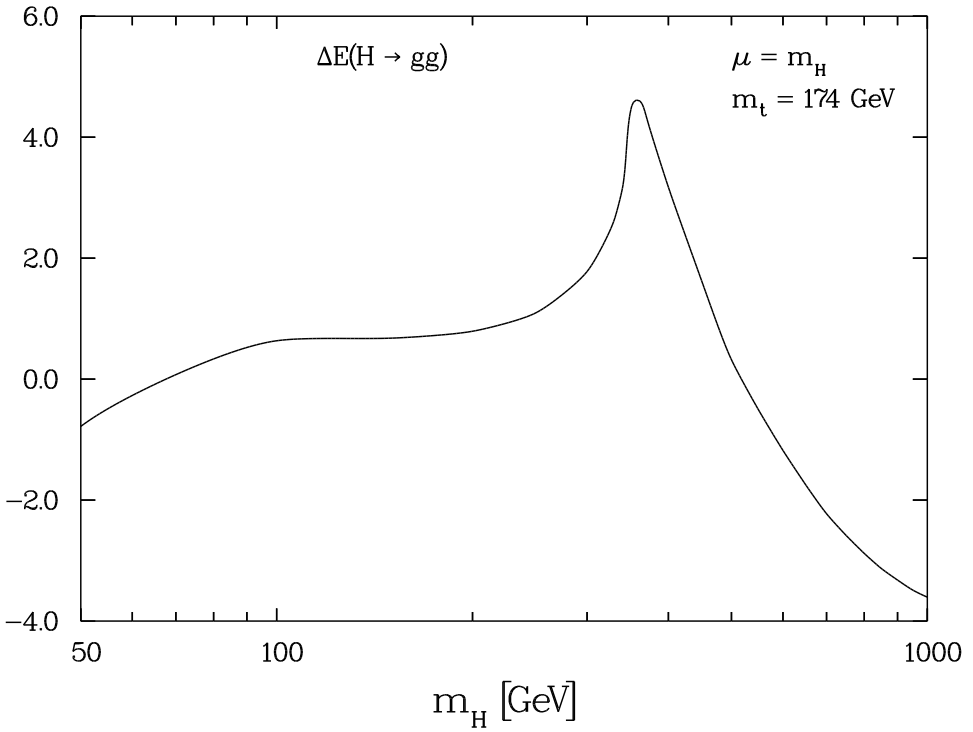

ΔE(H → gg)
$\mu = m_H$
m_t = 174 GeV
6.0
4.0
2.0
0.0
−2.0
−4.0
50
100
1000
m_H [GeV]

Fig. 7b

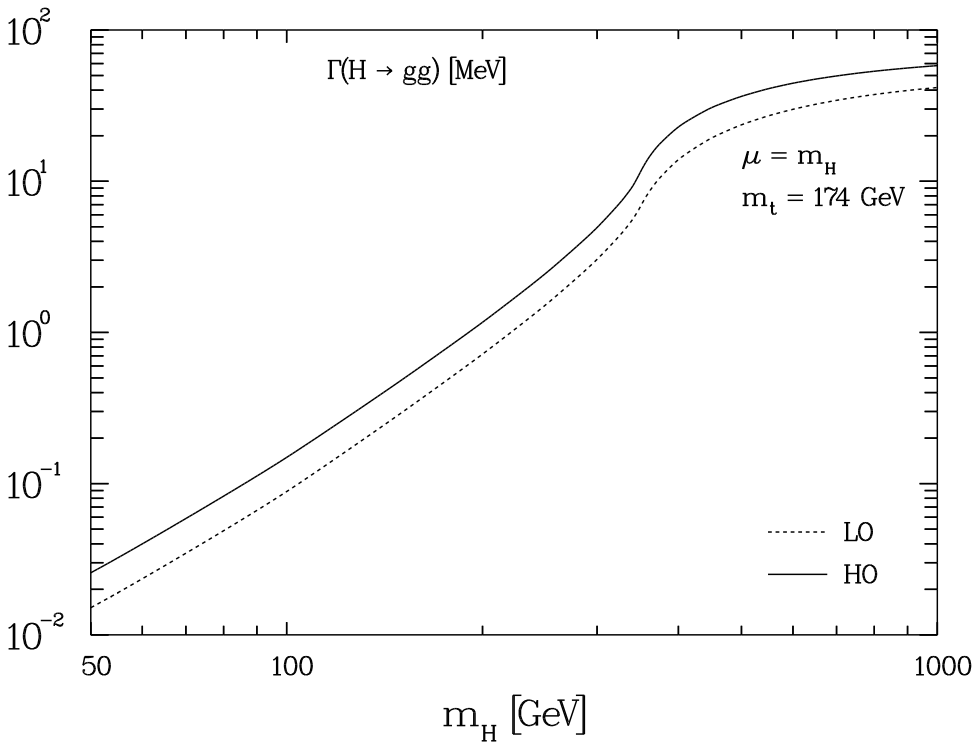

10^2
10^1
10^0
10^{-1}
10^{-2}
Γ(H → gg) [MeV]
μ = m_H
m_t = 174 GeV
LO
HO
50
100
1000
m_H [GeV]

Fig. 8a

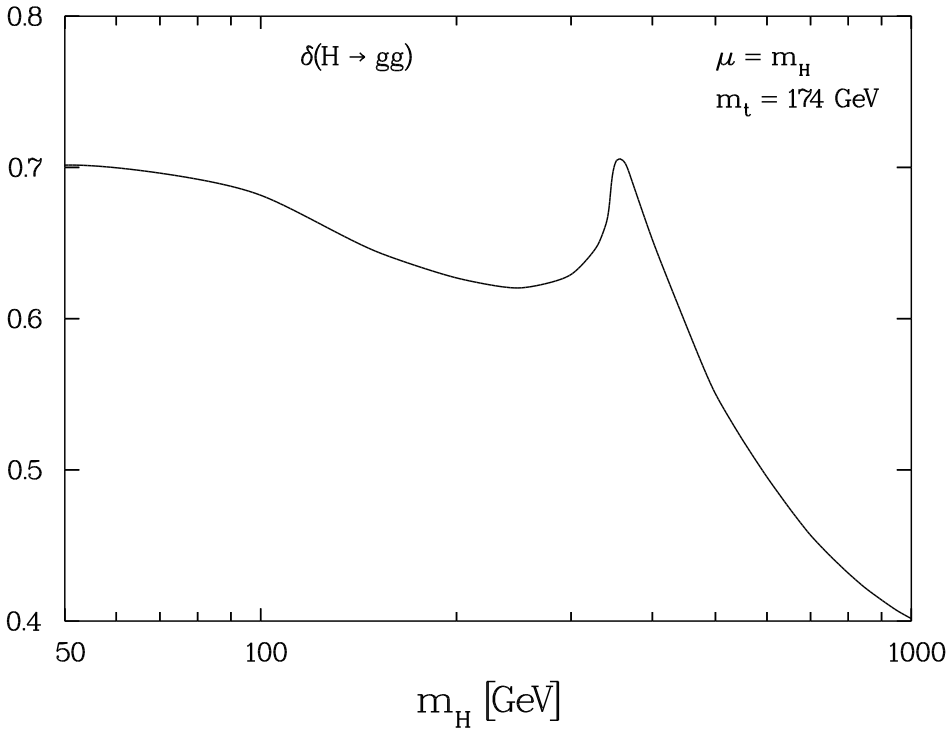

0.8
0.7
0.6
0.5
0.4
δ(H → gg)
μ = m_H
m_t = 174 GeV
50
100
1000
m_H [GeV]

Fig. 8b

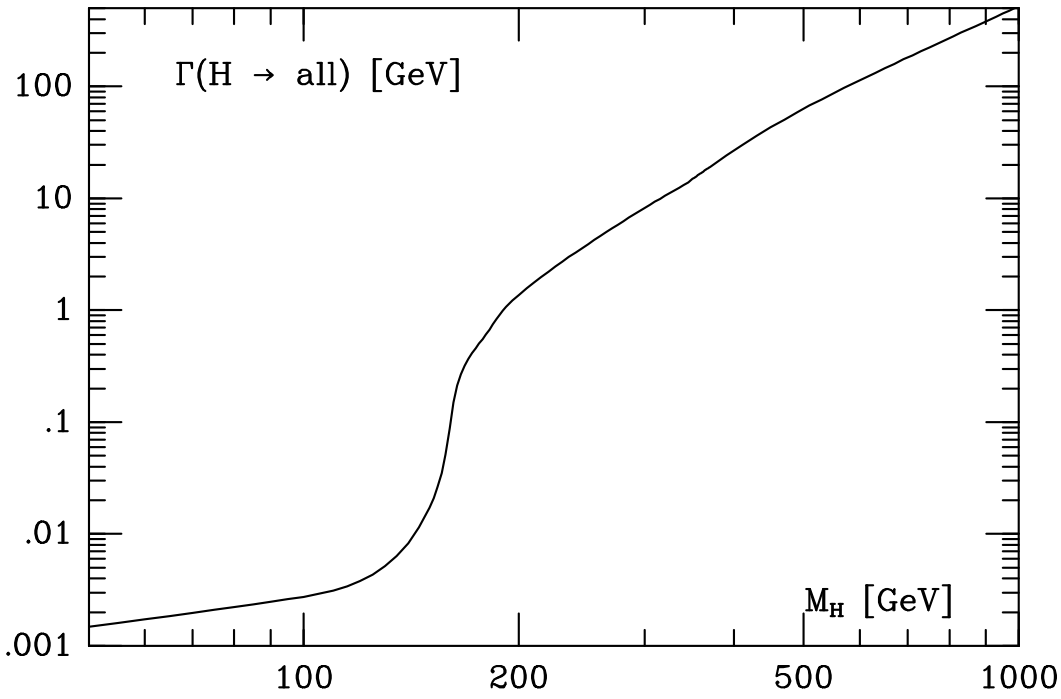

Γ(H → all) [GeV]
100
10
1
.1
.01
.001
M_H [GeV]
100
200
500
1000

Fig. 9a

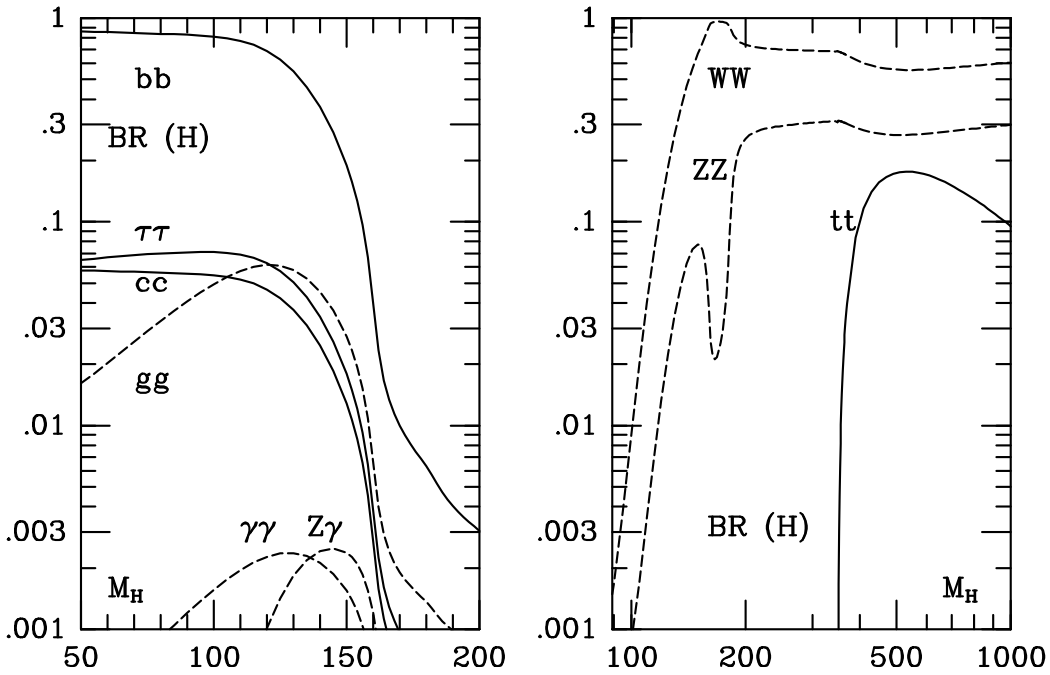

1
.3
.1
.03
.01
.003
.001
bb
BR (H)
ττ
cc
gg
γγ
Zγ
M_H
50
100
150
200
WW
ZZ
tt
BR (H)
M_H
100
200
500
1000

Fig. 9b

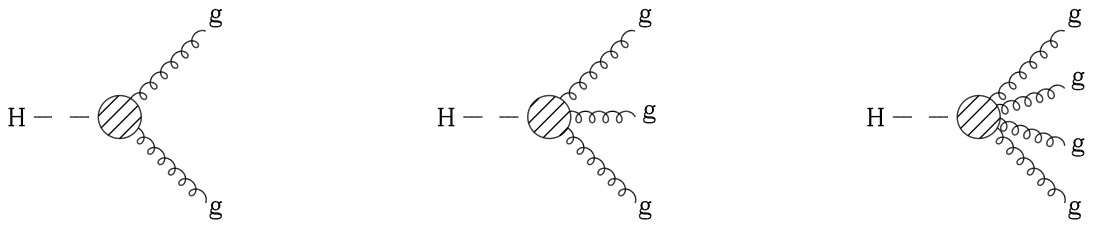


Fig. 10a

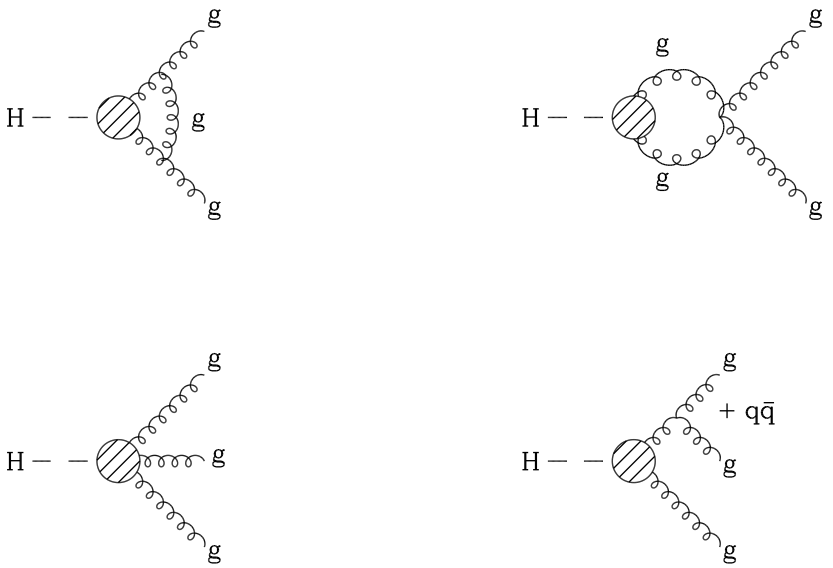


Fig. 10b

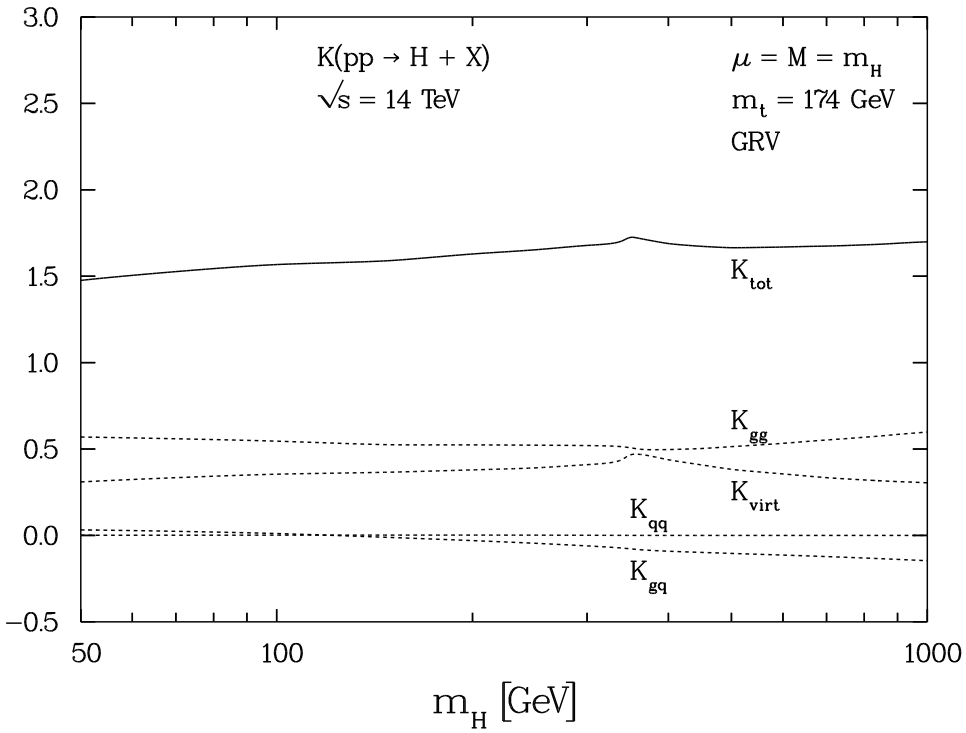

K(pp → H + X)
√s = 14 TeV
μ = M = m_H
m_t = 174 GeV
GRV
K_tot
K_gg
K_virt
K_qq
K_gq
3.0
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
50
100
1000
m_H [GeV]

Fig. 11

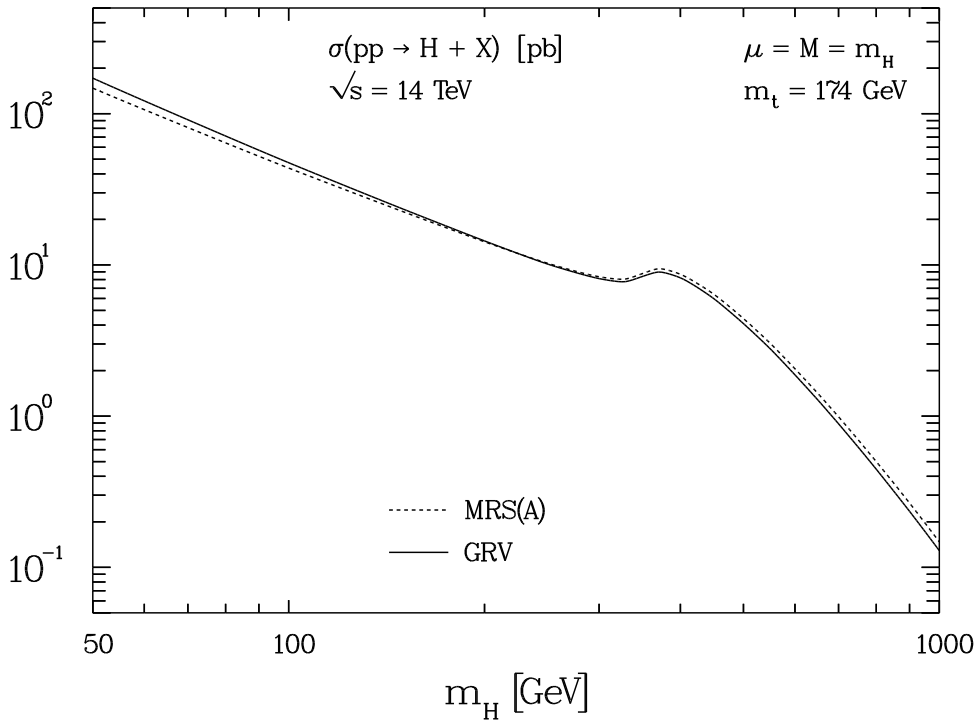


Fig. 12a

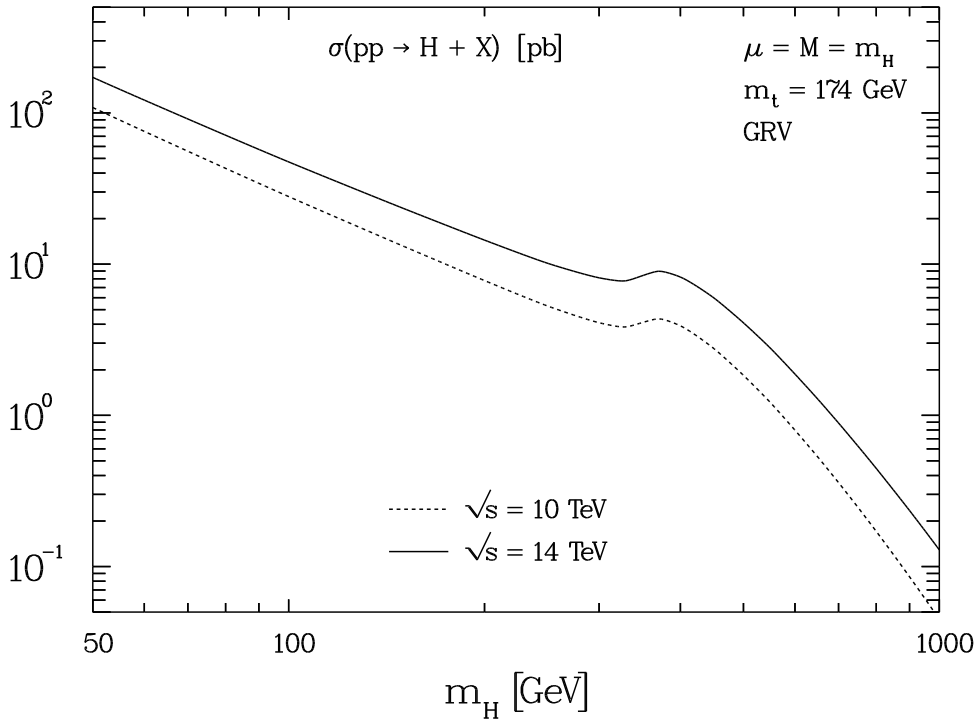


Fig. 12b

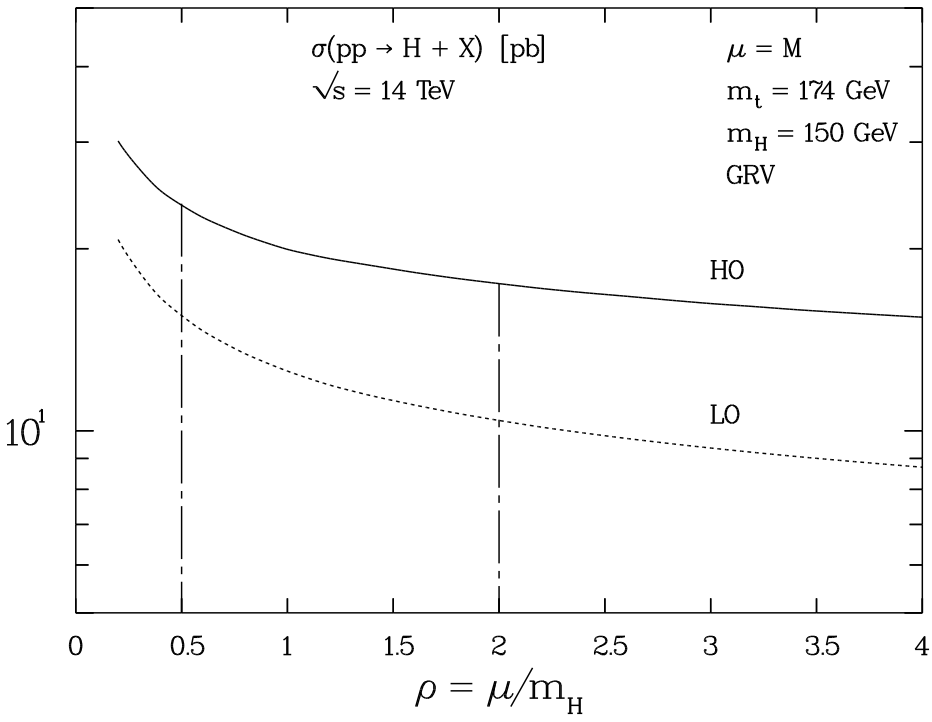


Fig. 13a

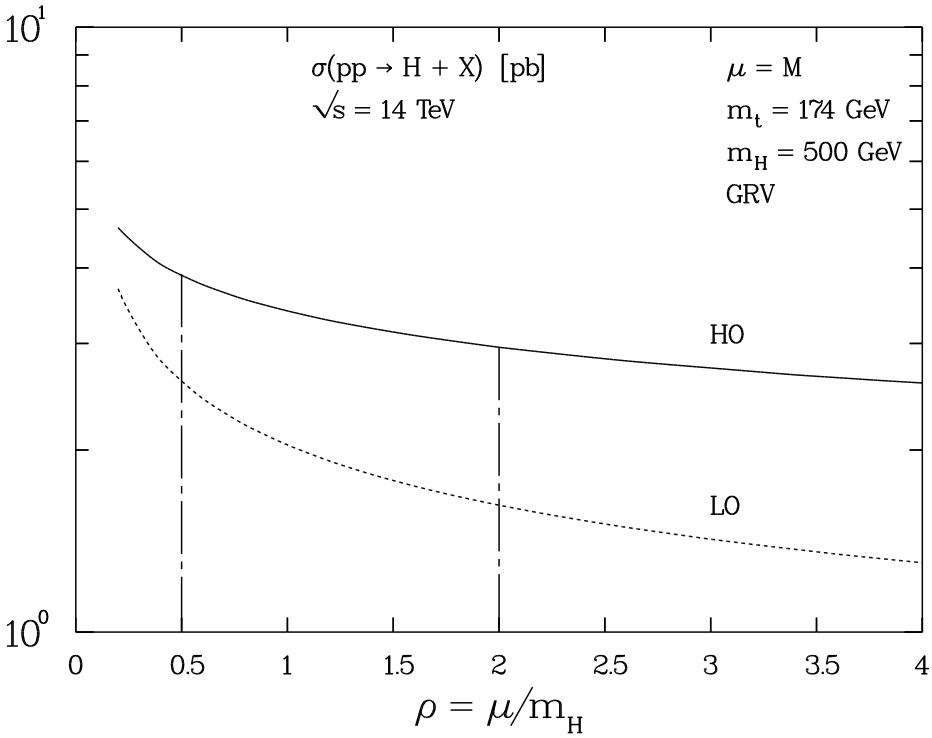


Fig. 13b

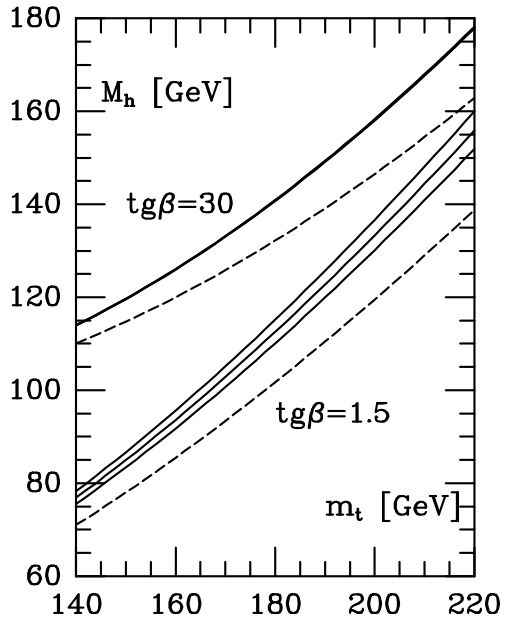


Fig. 14a

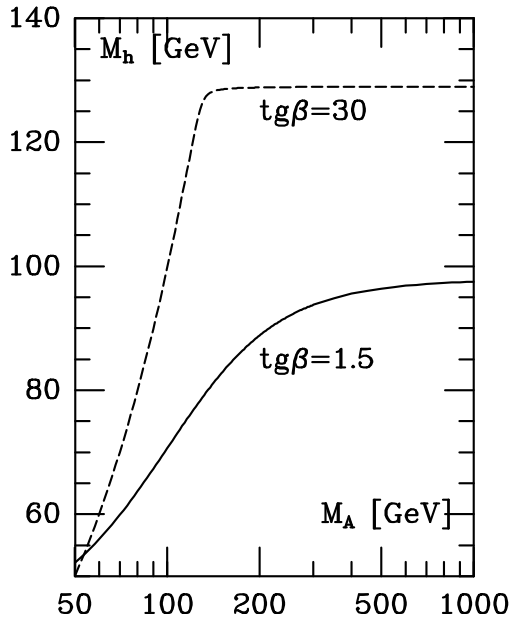


Fig. 14b

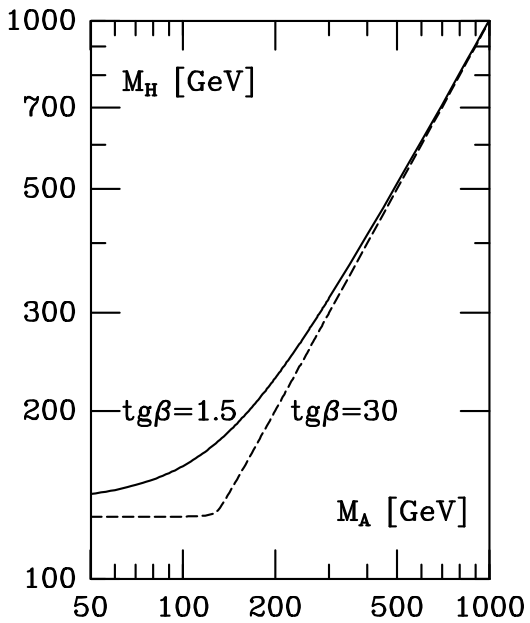


Fig. 14c

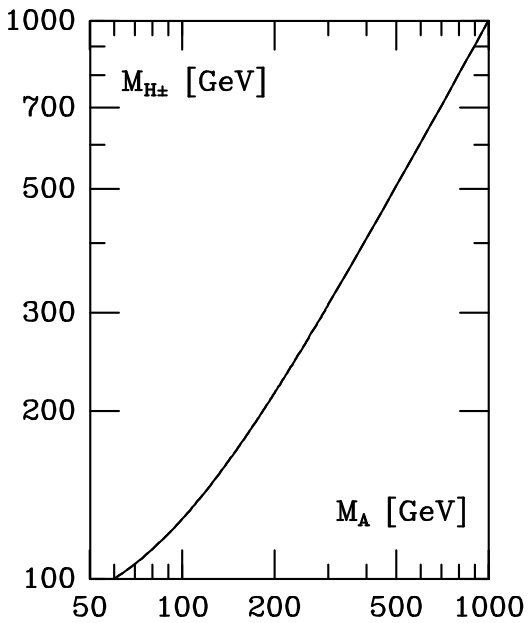


Fig. 14d

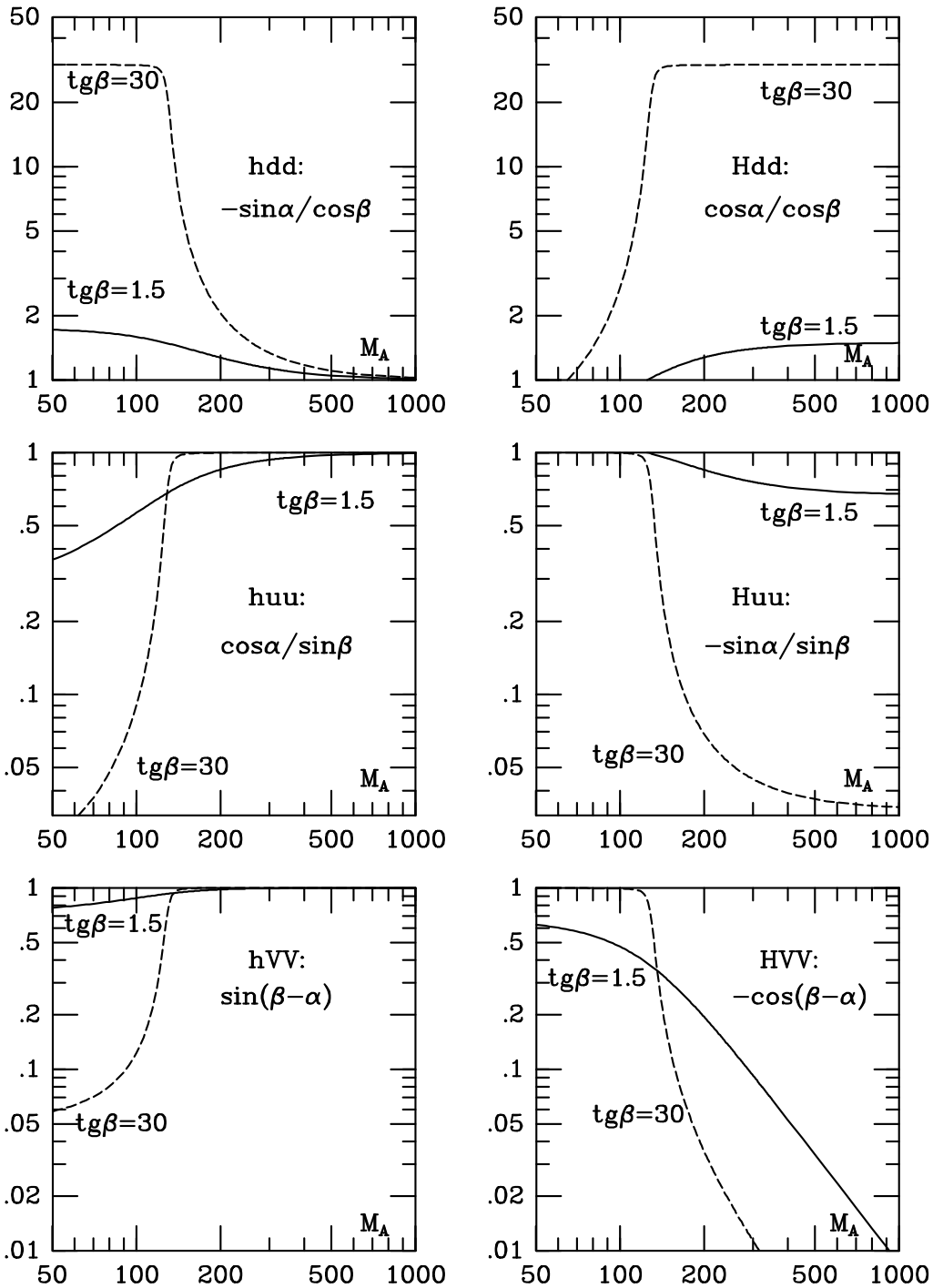

tgβ=30
hdd:
−sinα/cosβ
tgβ=1.5
M_A
tgβ=30
Hdd:
cosα/cosβ
tgβ=1.5
M_A
tgβ=1.5
huu:
cosα/sinβ
tgβ=30
M_A
tgβ=1.5
Huu:
−sinα/sinβ
tgβ=30
M_A
tgβ=1.5
hVV:
sin(β−α)
tgβ=30
M_A
tgβ=1.5
HVV:
−cos(β−α)
tgβ=30
M_A
50
100
200
500
1000
1
2
5
10
20
.01
.02
.05
.1
.2
.5

Fig. 15

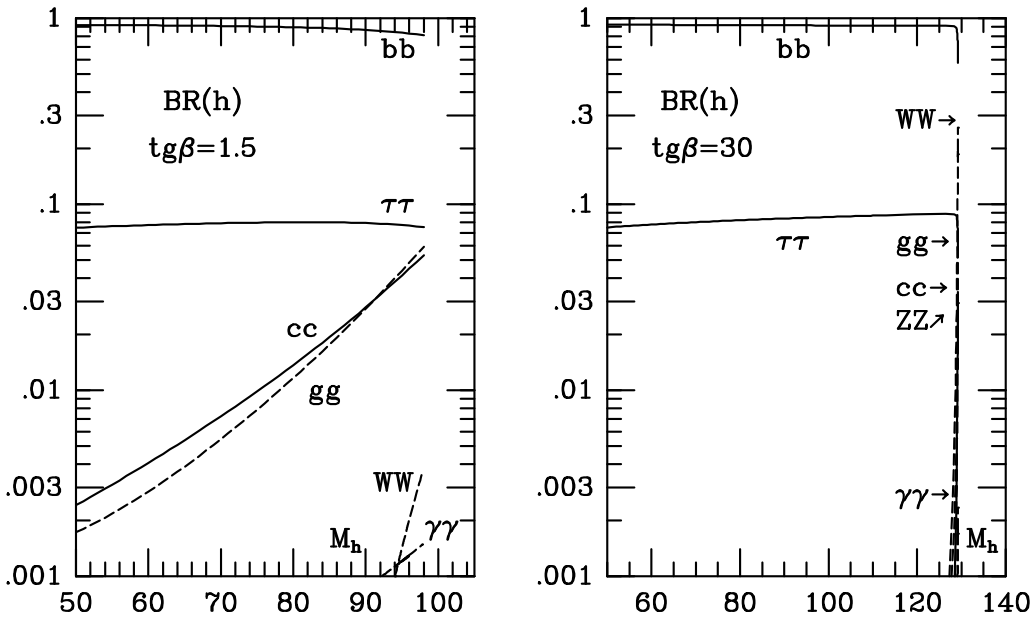


Fig. 16a

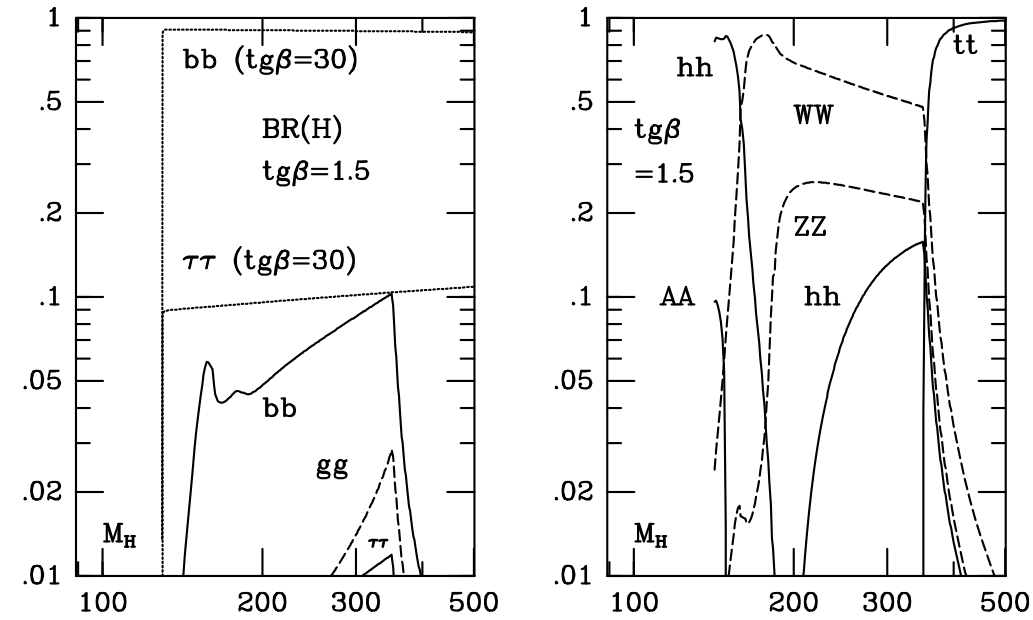


Fig. 16b

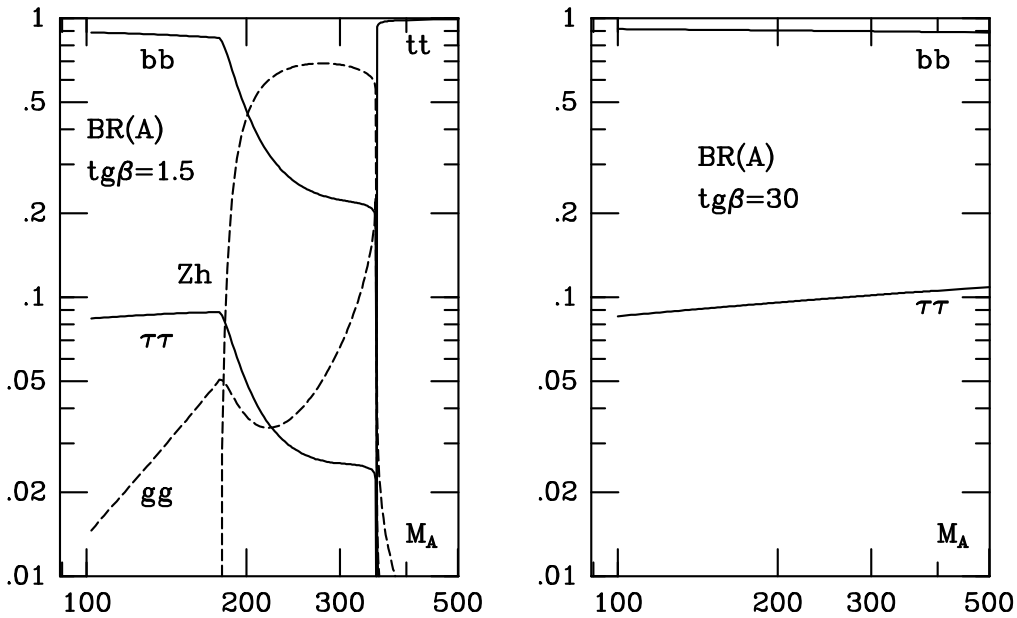


Fig. 16c

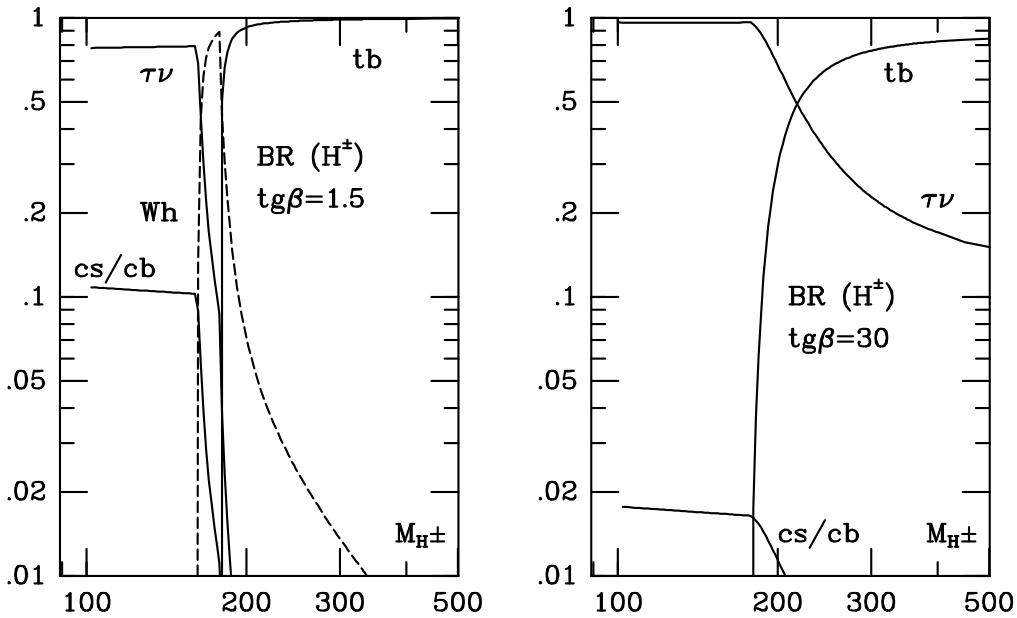


Fig. 16d

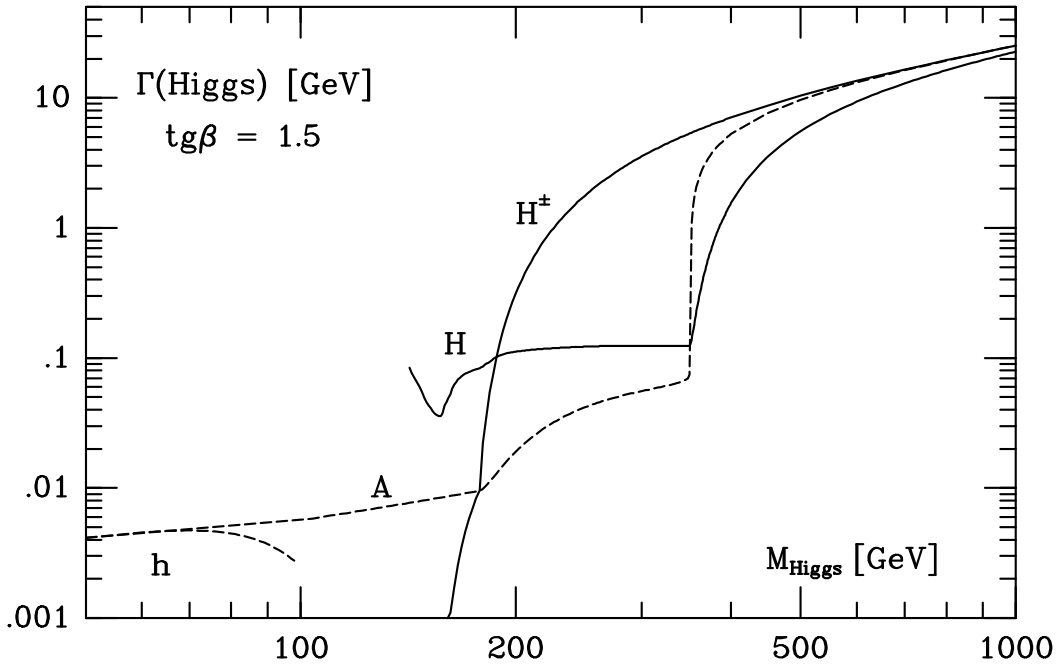


Fig. 17a

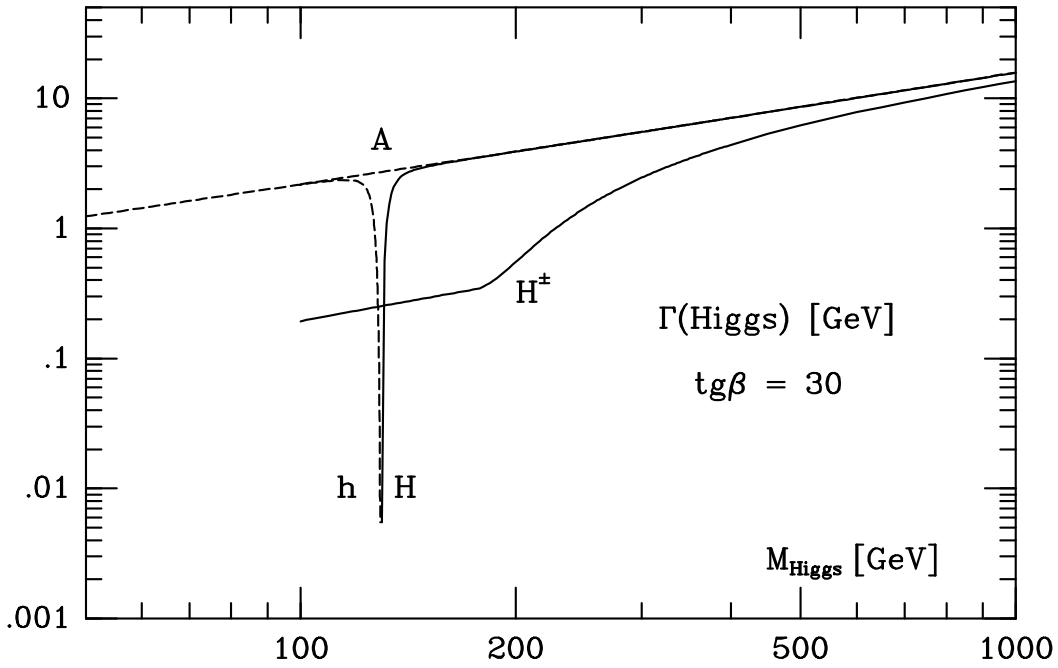


Fig. 17b

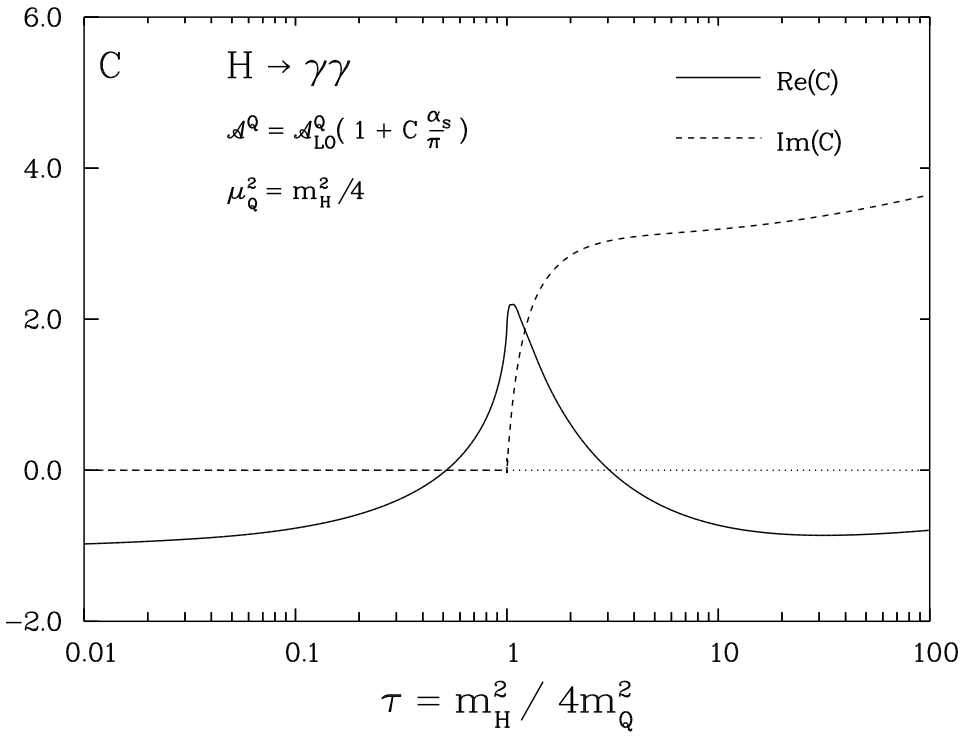


Fig. 18a

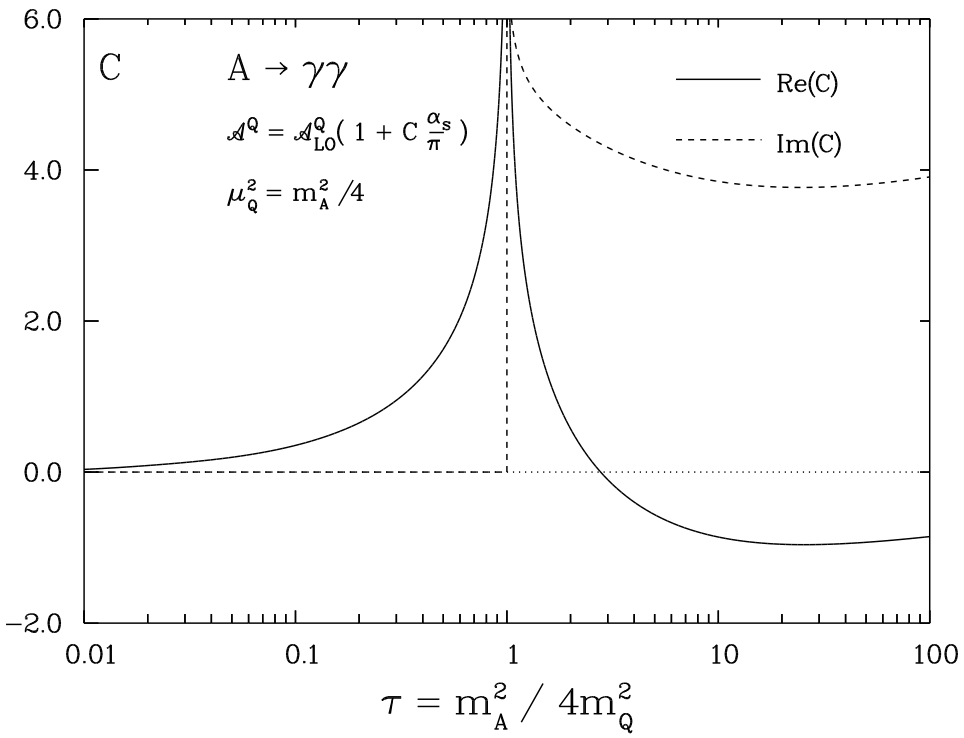


Fig. 18b

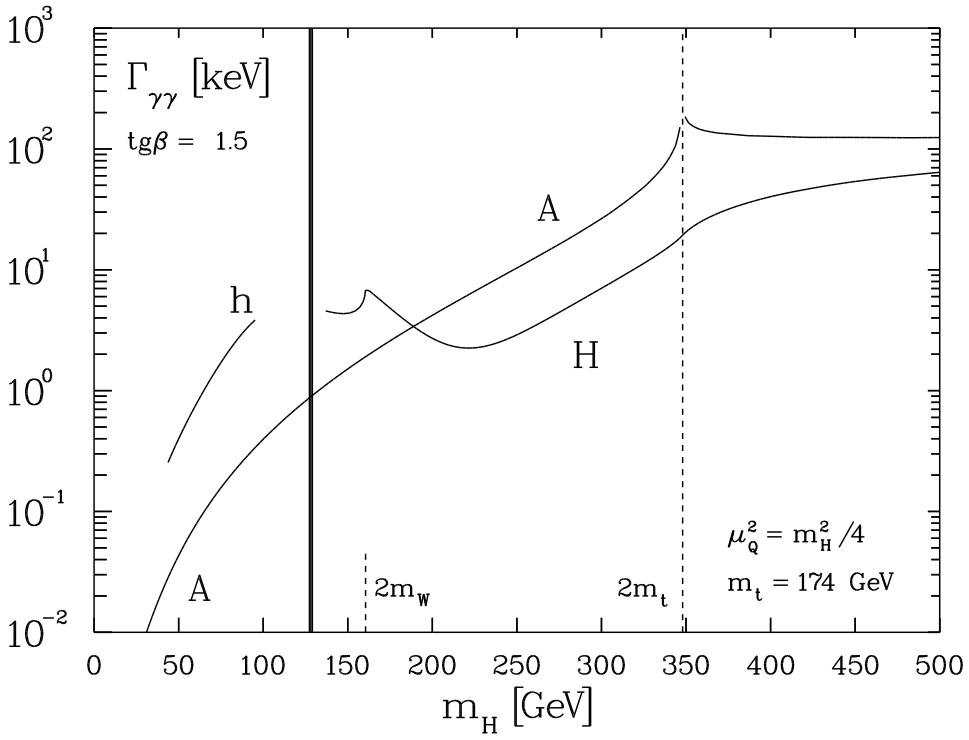


Fig. 19a

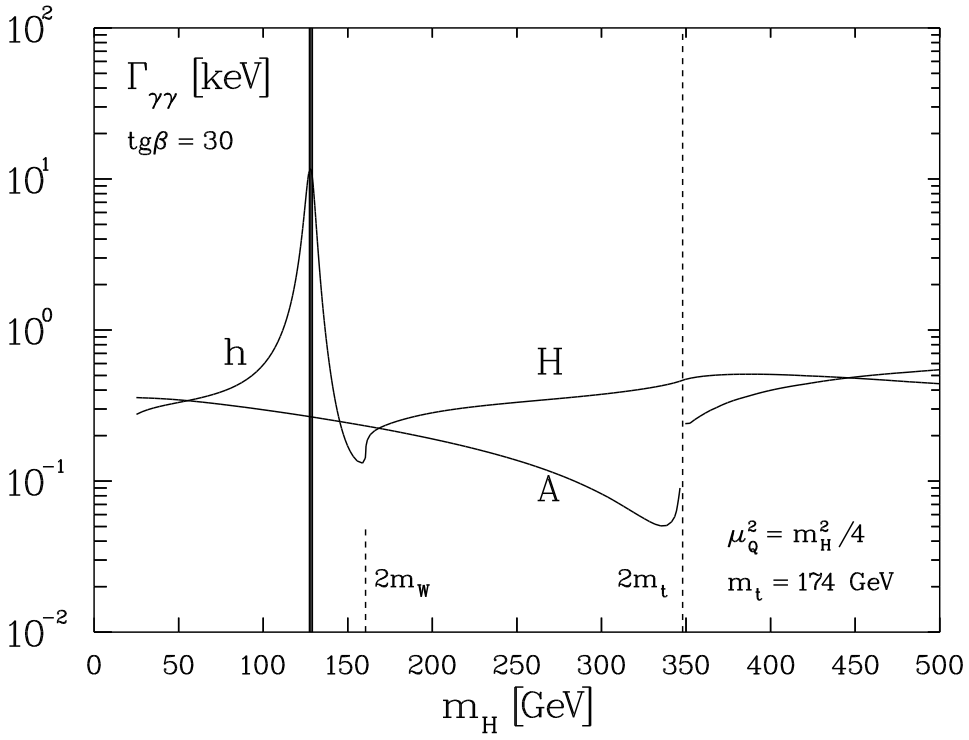


Fig. 19b

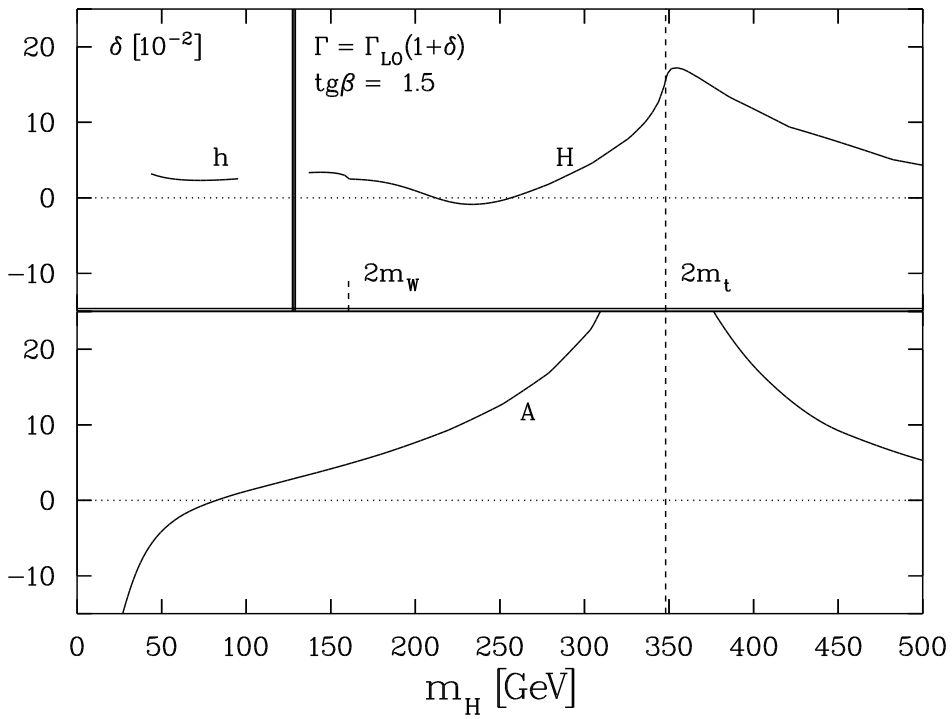


Fig. 19c

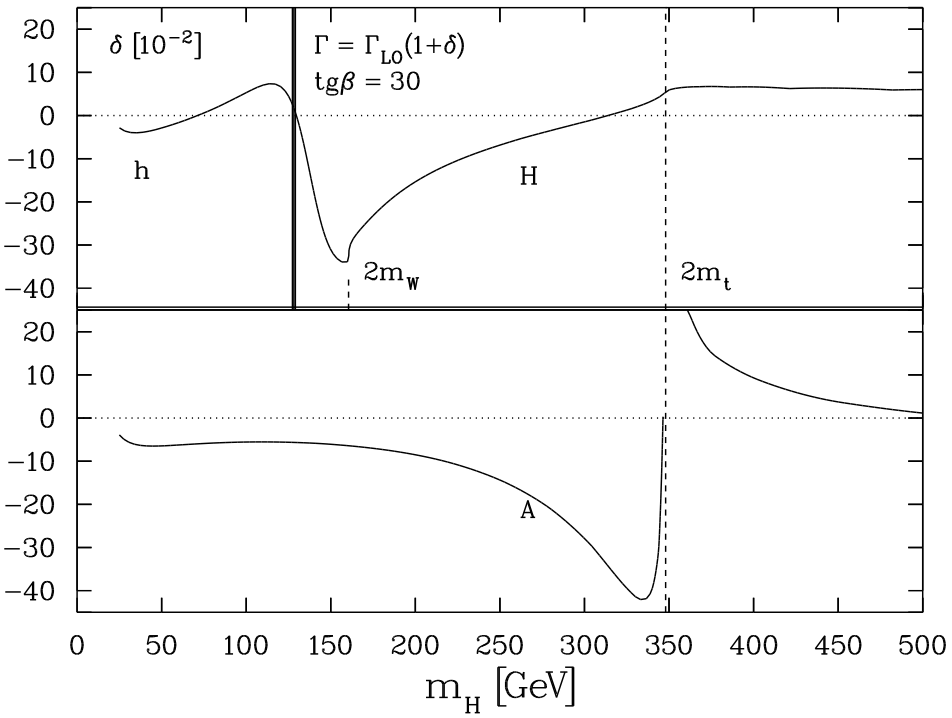


Fig. 19d

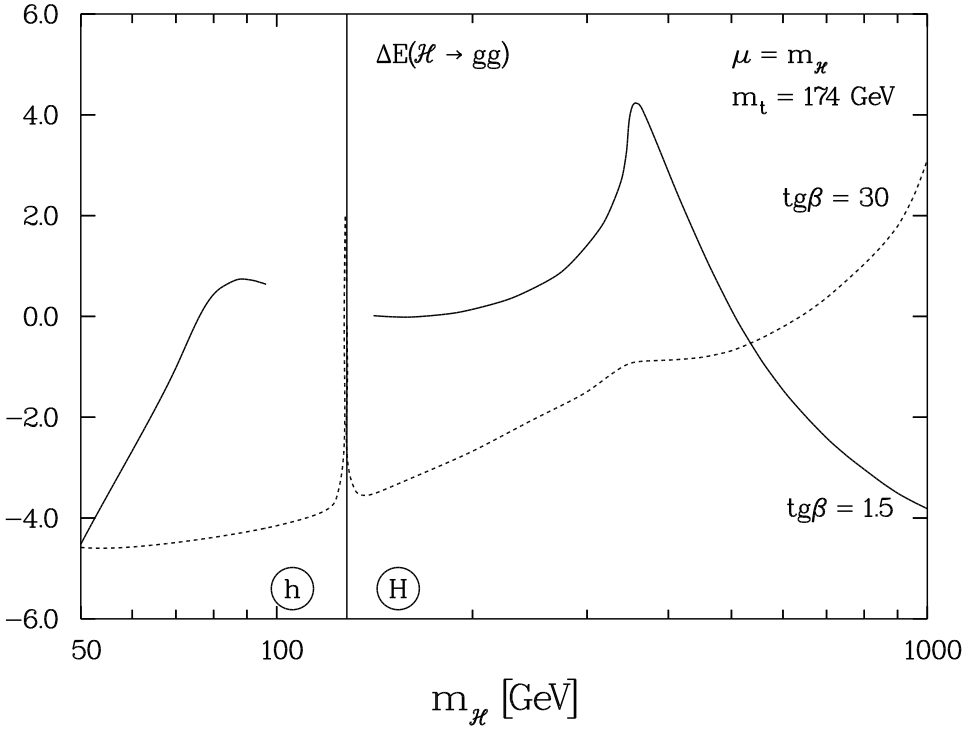


Fig. 20a

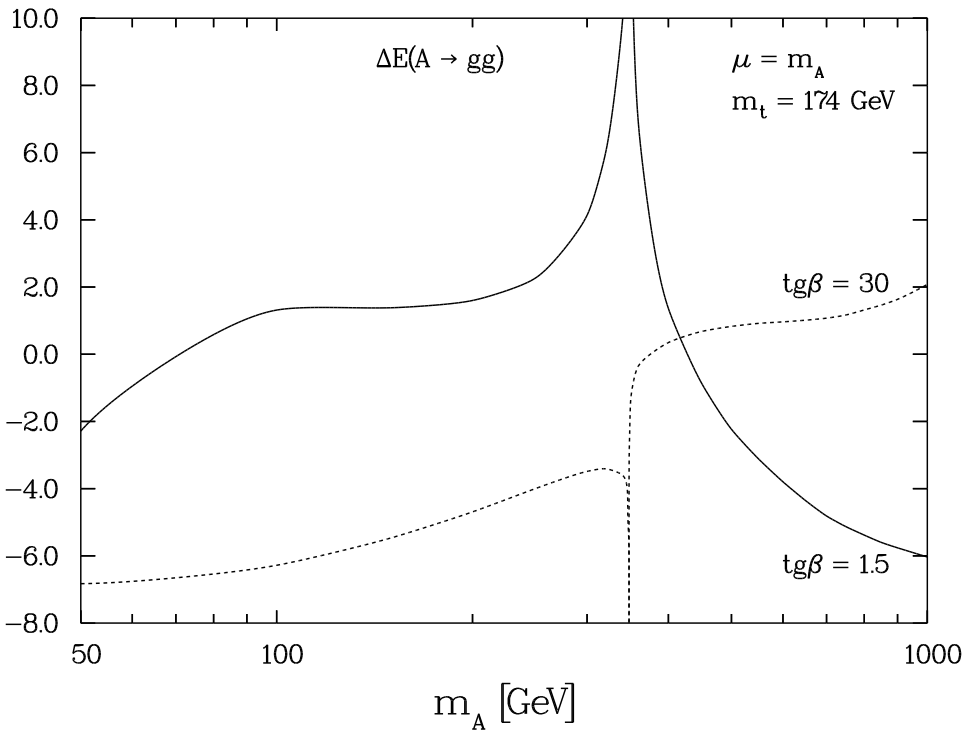


Fig. 20b

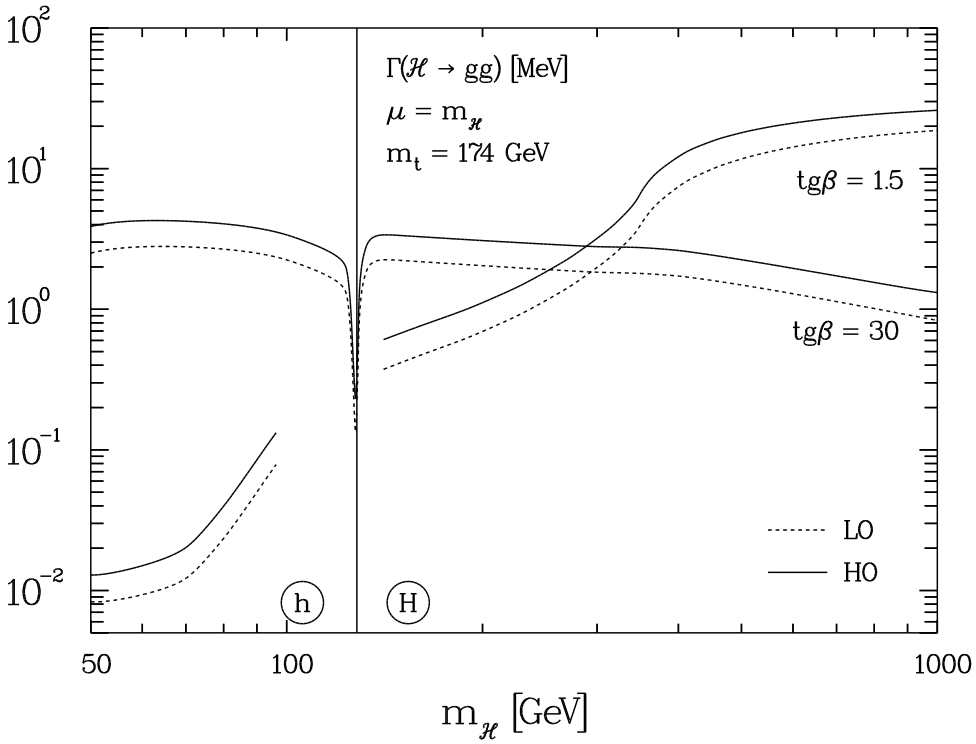


Fig. 21a

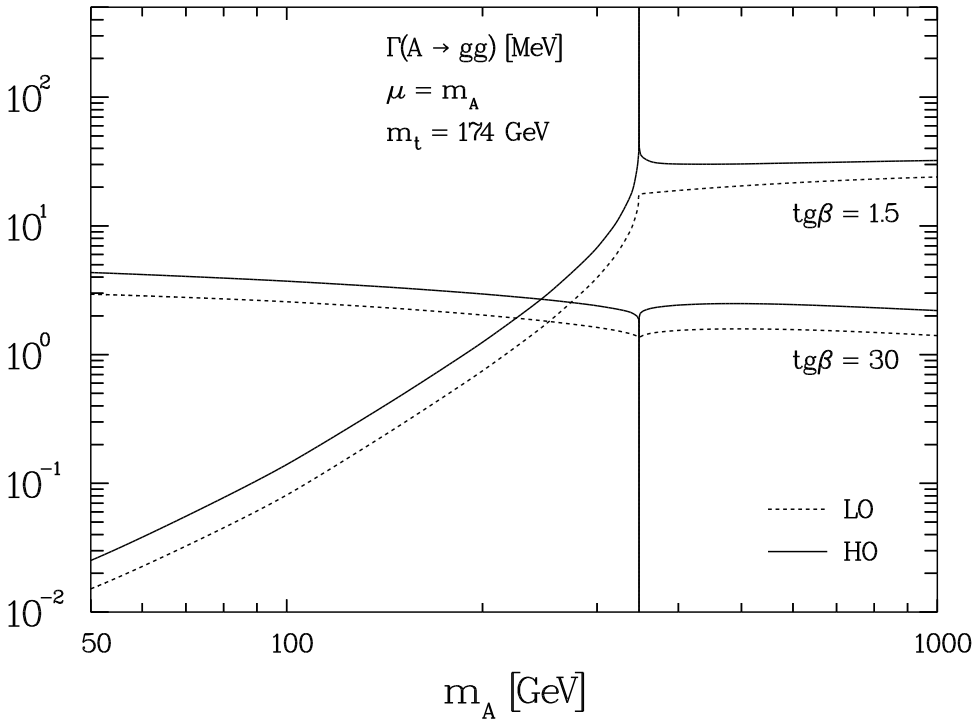


Fig. 21b

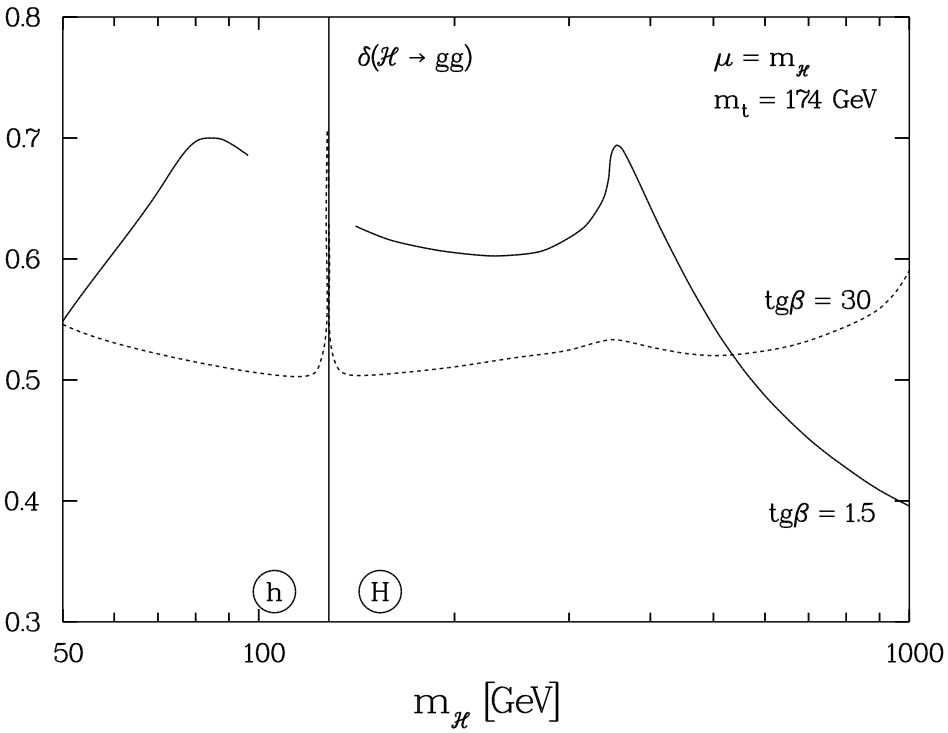


Fig. 21c

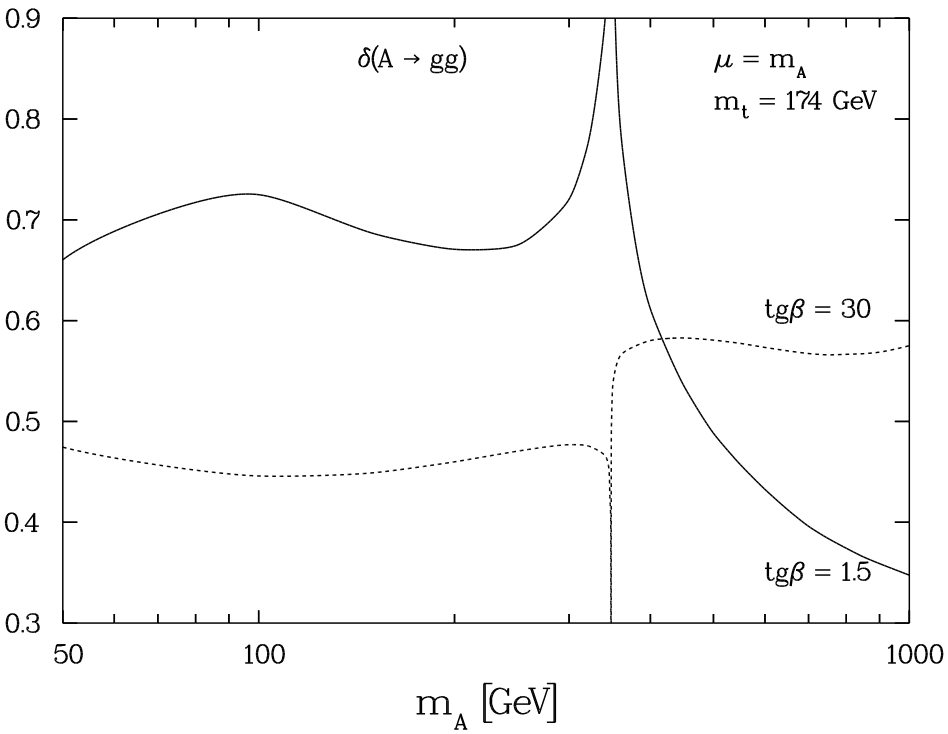


Fig. 21d

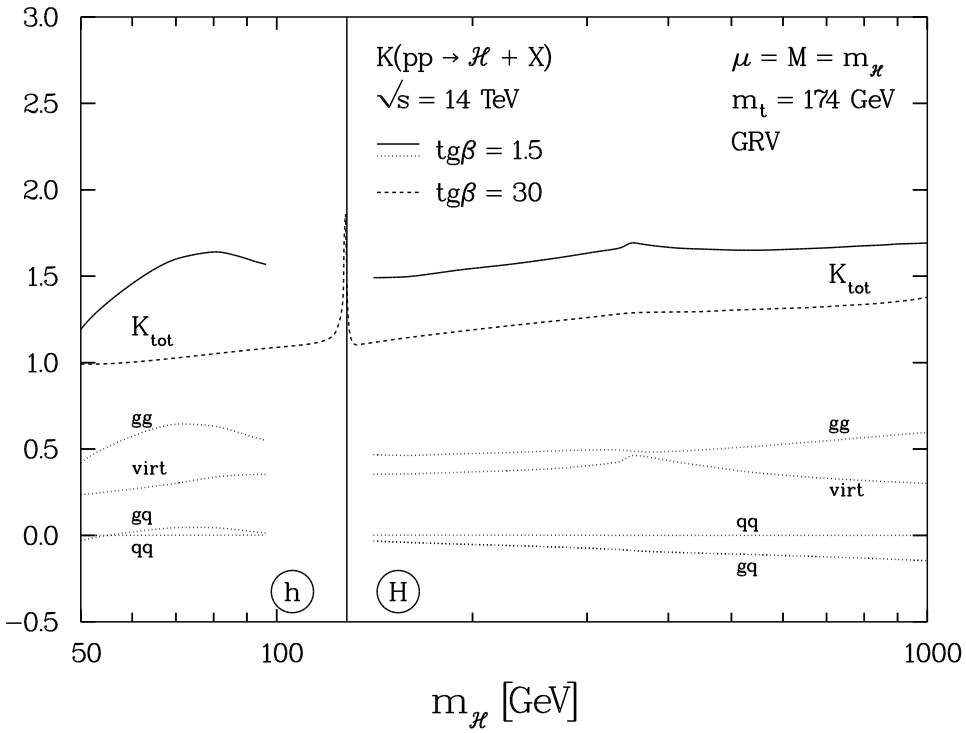


Fig. 22a

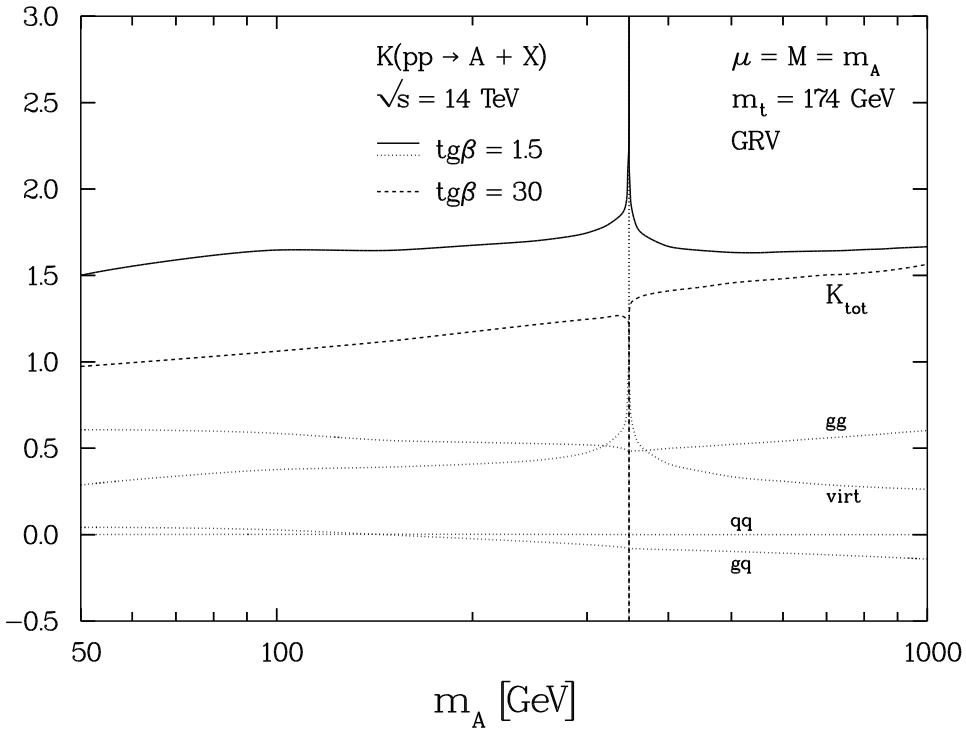


Fig. 22b

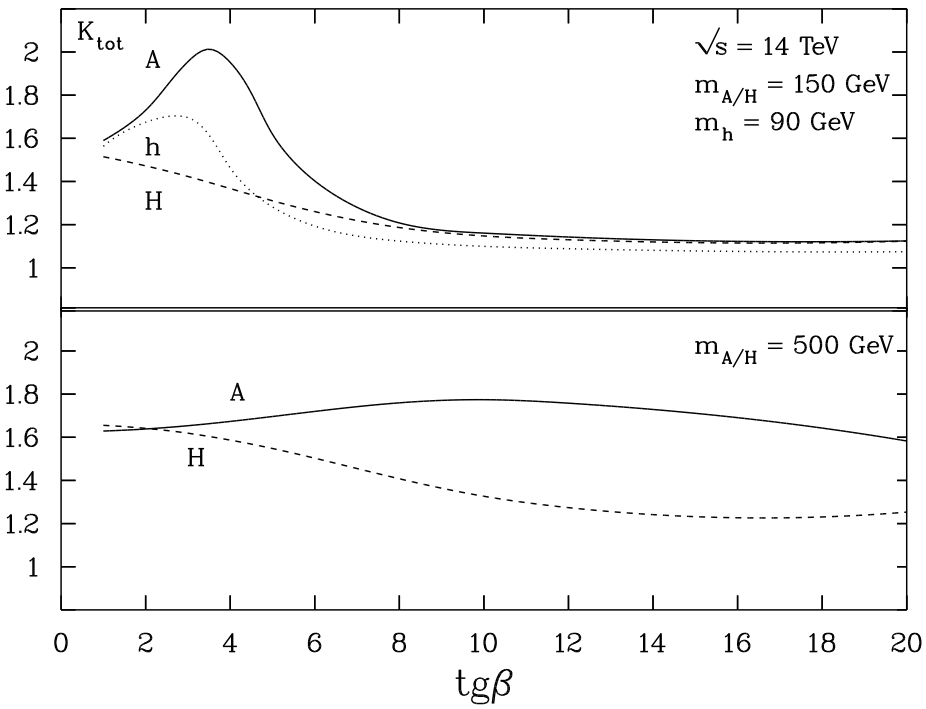

K_tot
A
h
H
√s = 14 TeV
m_A/H = 150 GeV
m_h = 90 GeV
m_A/H = 500 GeV
A
H
2
1.8
1.6
1.4
1.2
1
0
2
4
6
8
10
12
14
16
18
20
tgβ

Fig. 23

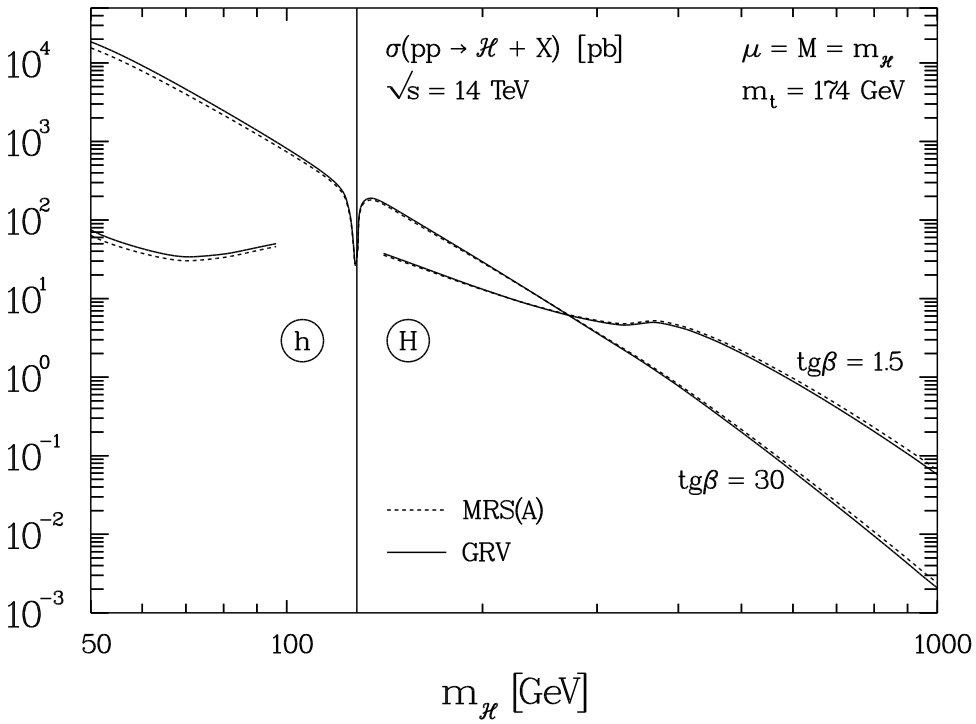


Fig. 24a

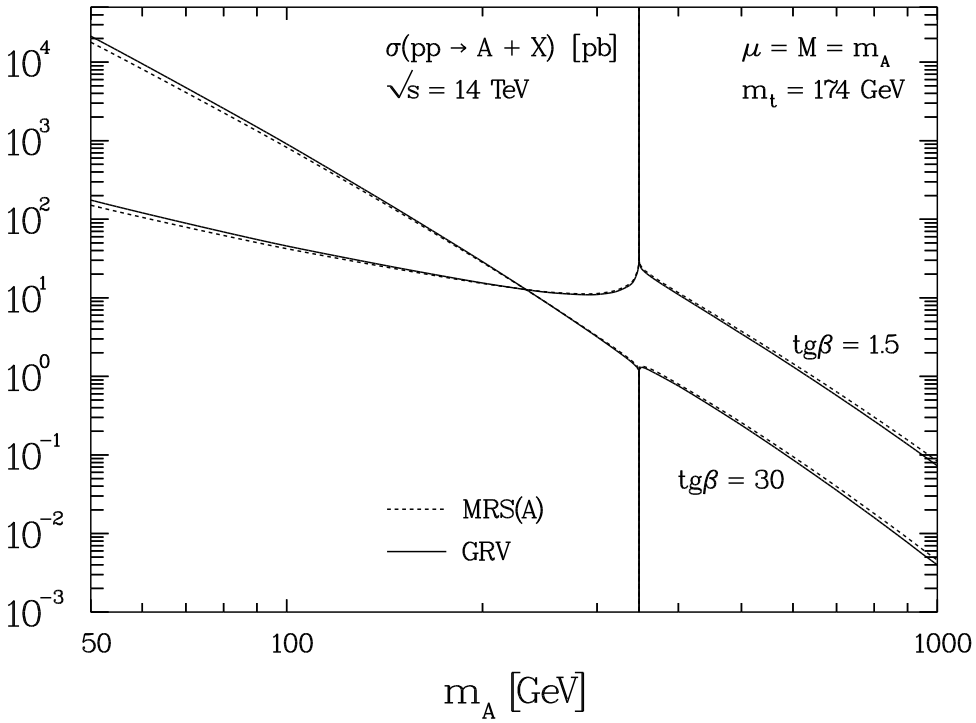


Fig. 24b

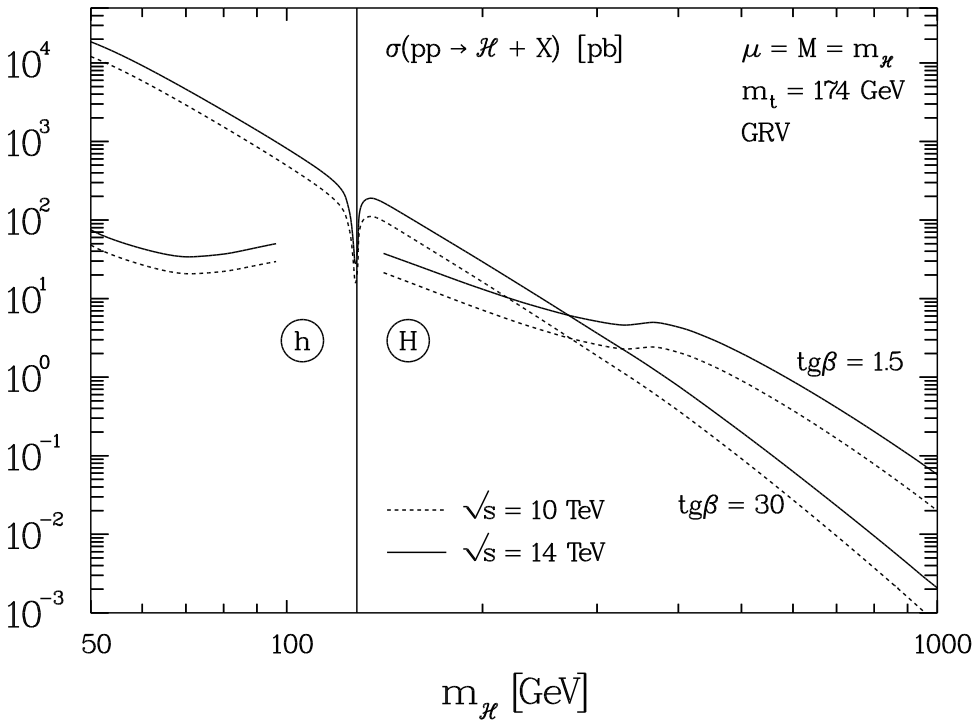


Fig. 25a

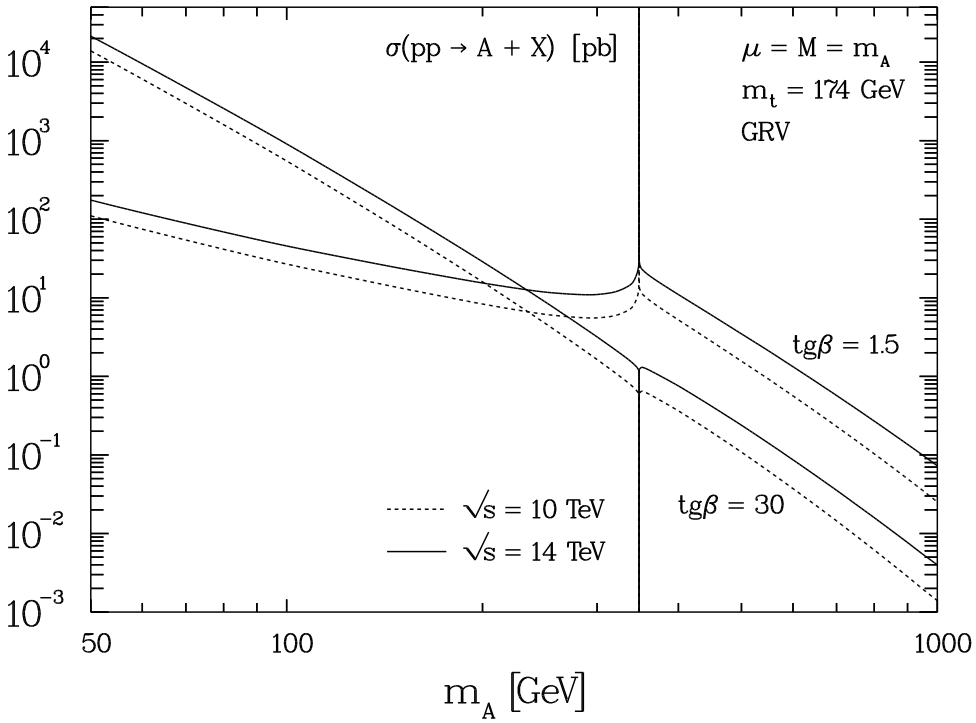


Fig. 25b

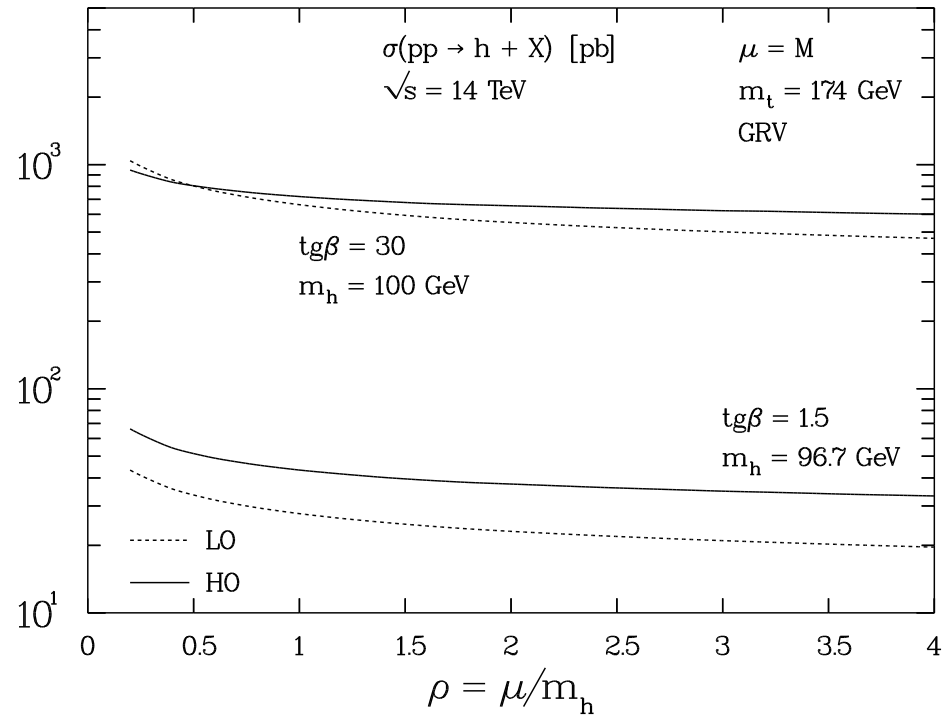


Fig. 26a

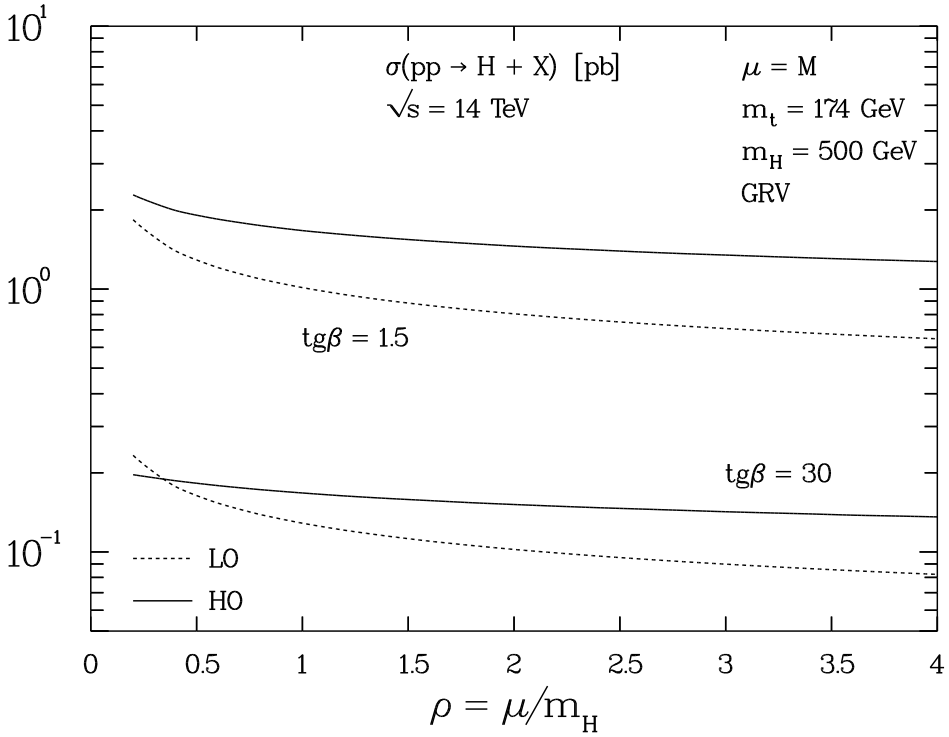


Fig. 26b

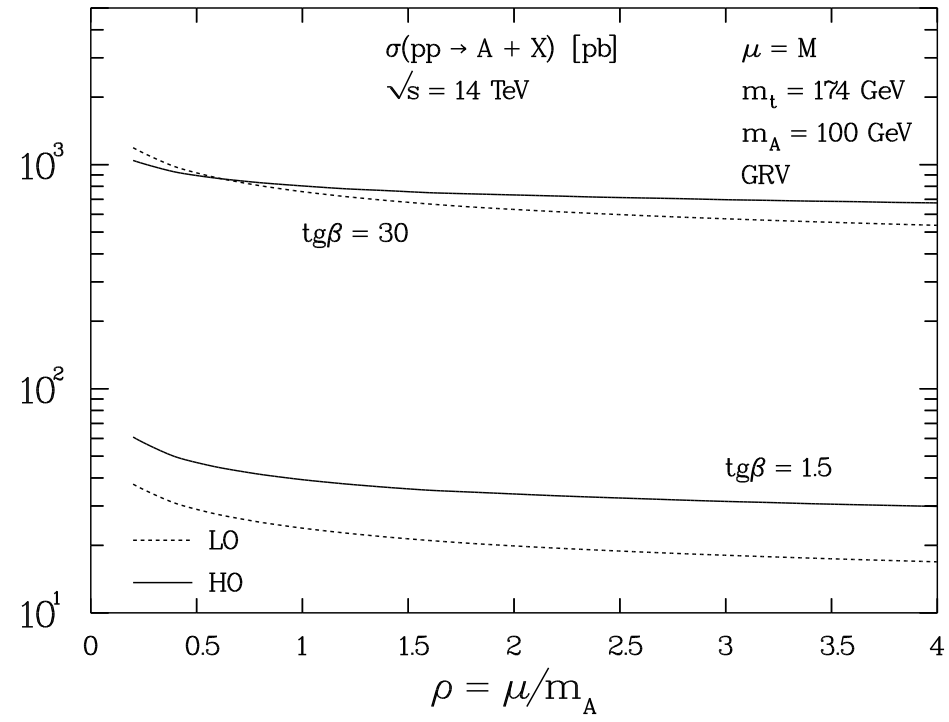


Fig. 26c

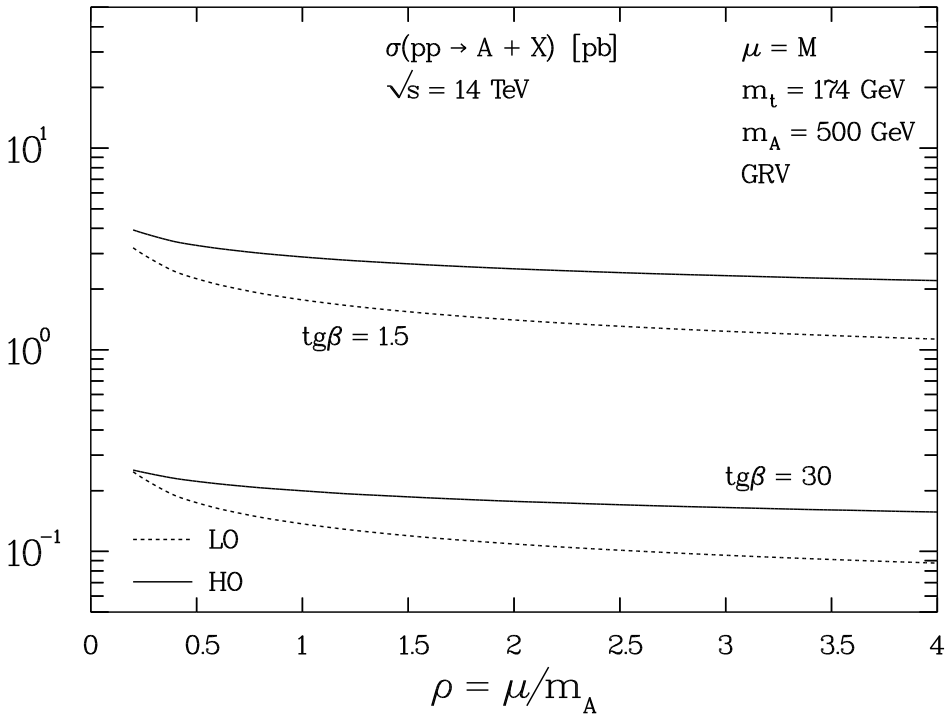


Fig. 26d