Soft Photons

Martin Völkl

Universität Heidelberg

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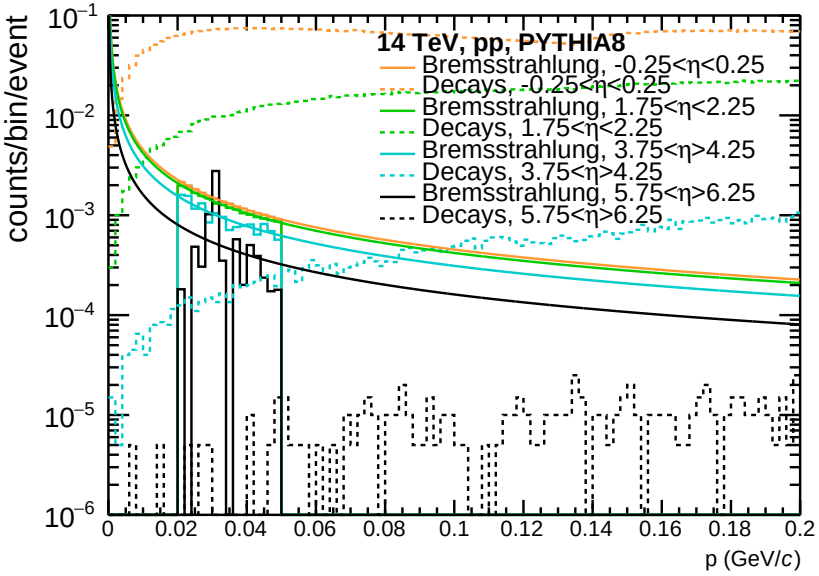
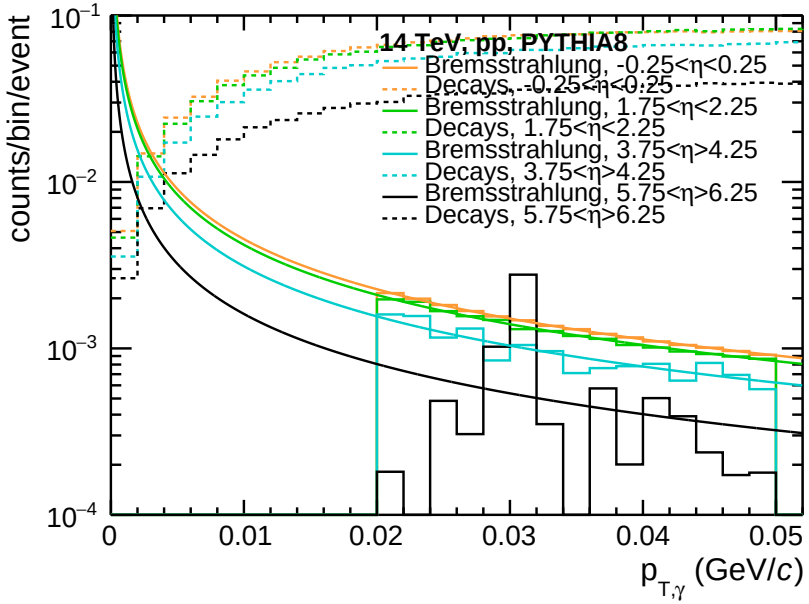
UNIVERSITÄT
HEIDELBERG
ZUKUNFT
SEIT 1386

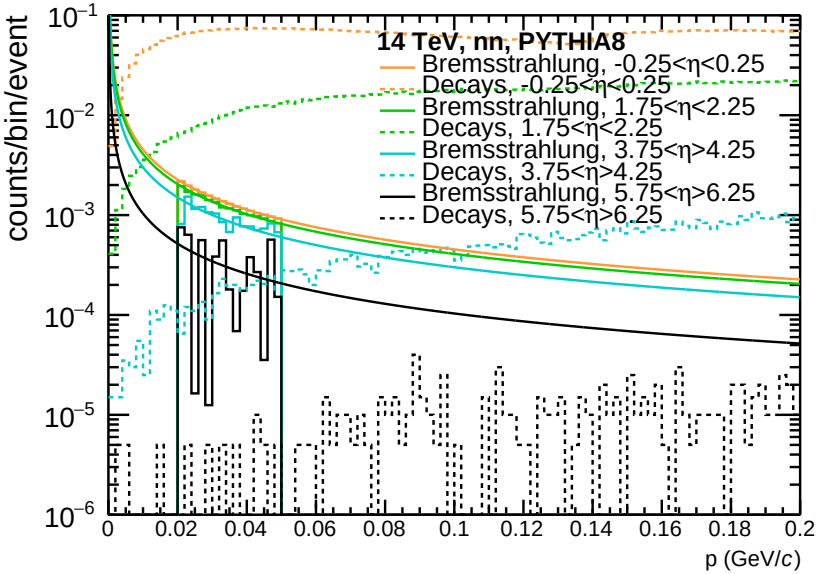
pp @ 14 TeV

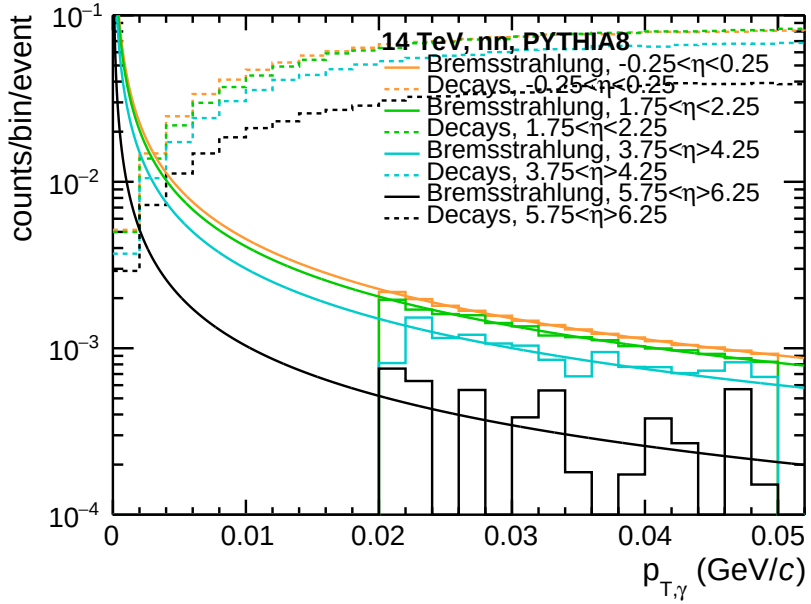




- $1/x$ bleibt bei Skalierung gleich
- Skalierung mit Mitte des y-Intervalls

nn @ 14 TeV


14 TeV, nn, PYTHIA8
Bremsstrahlung, -0.25<η<0.25
Decays, -0.25<η<0.25
Bremsstrahlung, 1.75<η<2.25
Decays, 1.75<η<2.25
Bremsstrahlung, 3.75<η>4.25
Decays, 3.75<η>4.25
Bremsstrahlung, 5.75<η>6.25
Decays, 5.75<η>6.25
counts/bin/event
p (GeV/c)


14 TeV, nn, PYTHIA8
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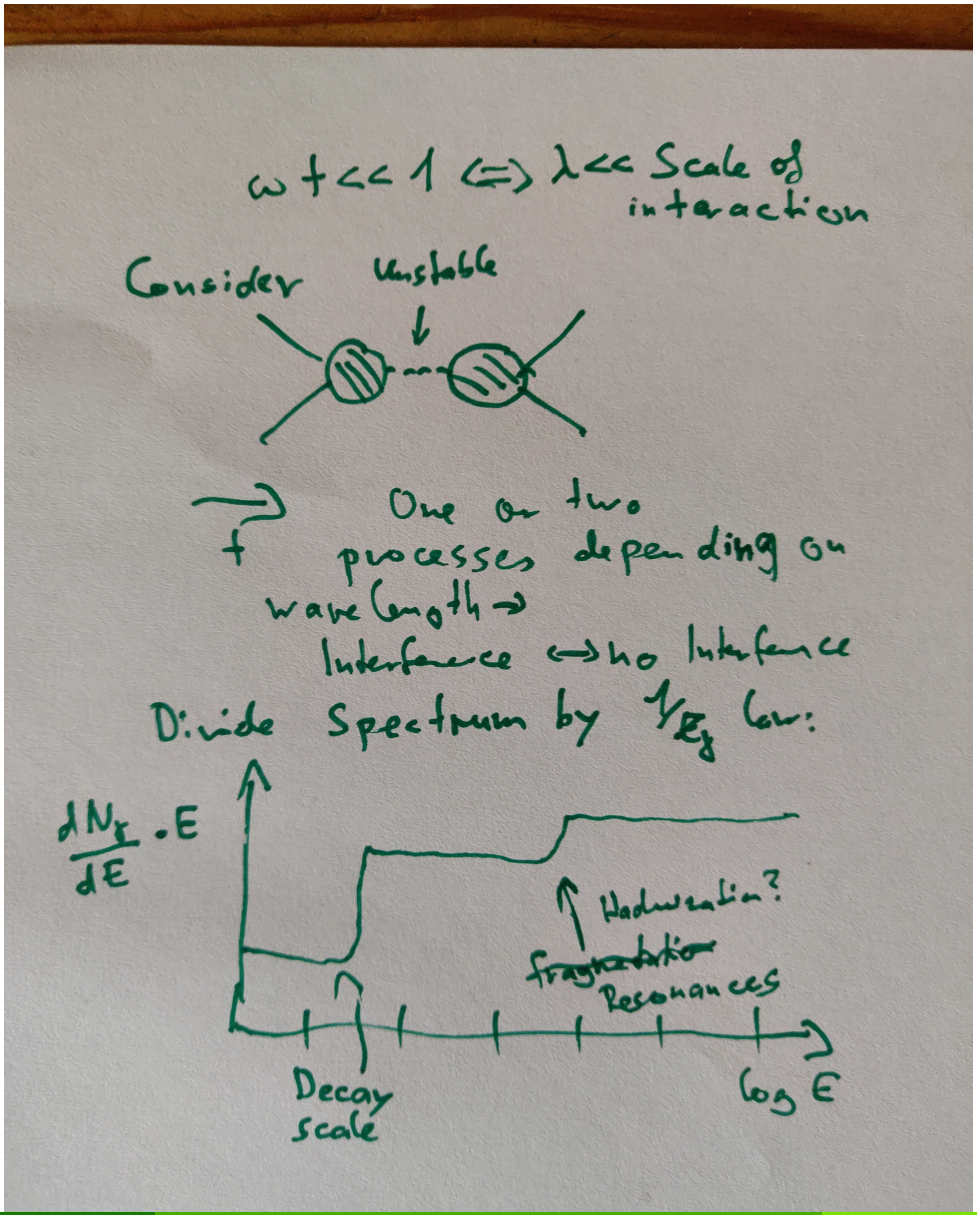
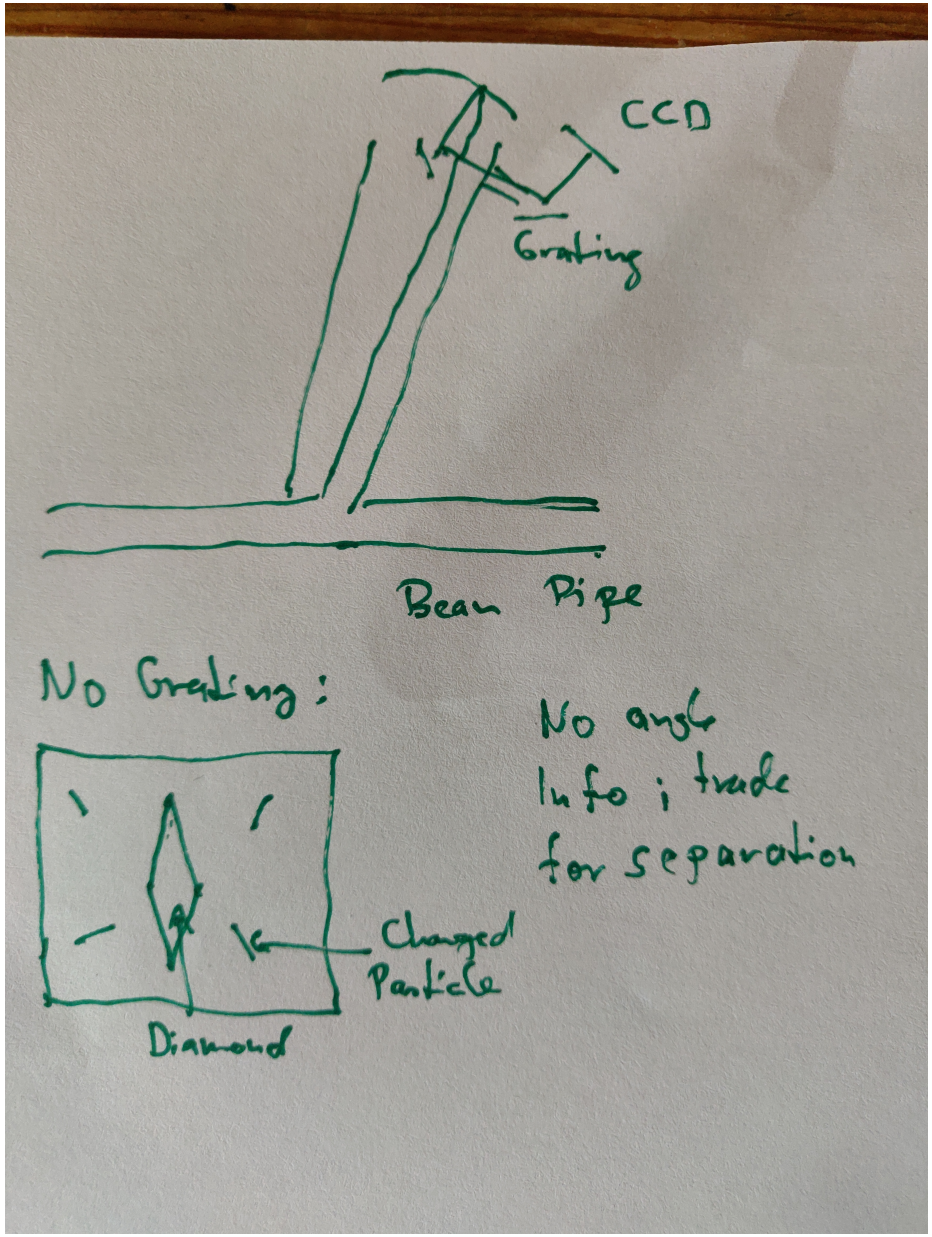
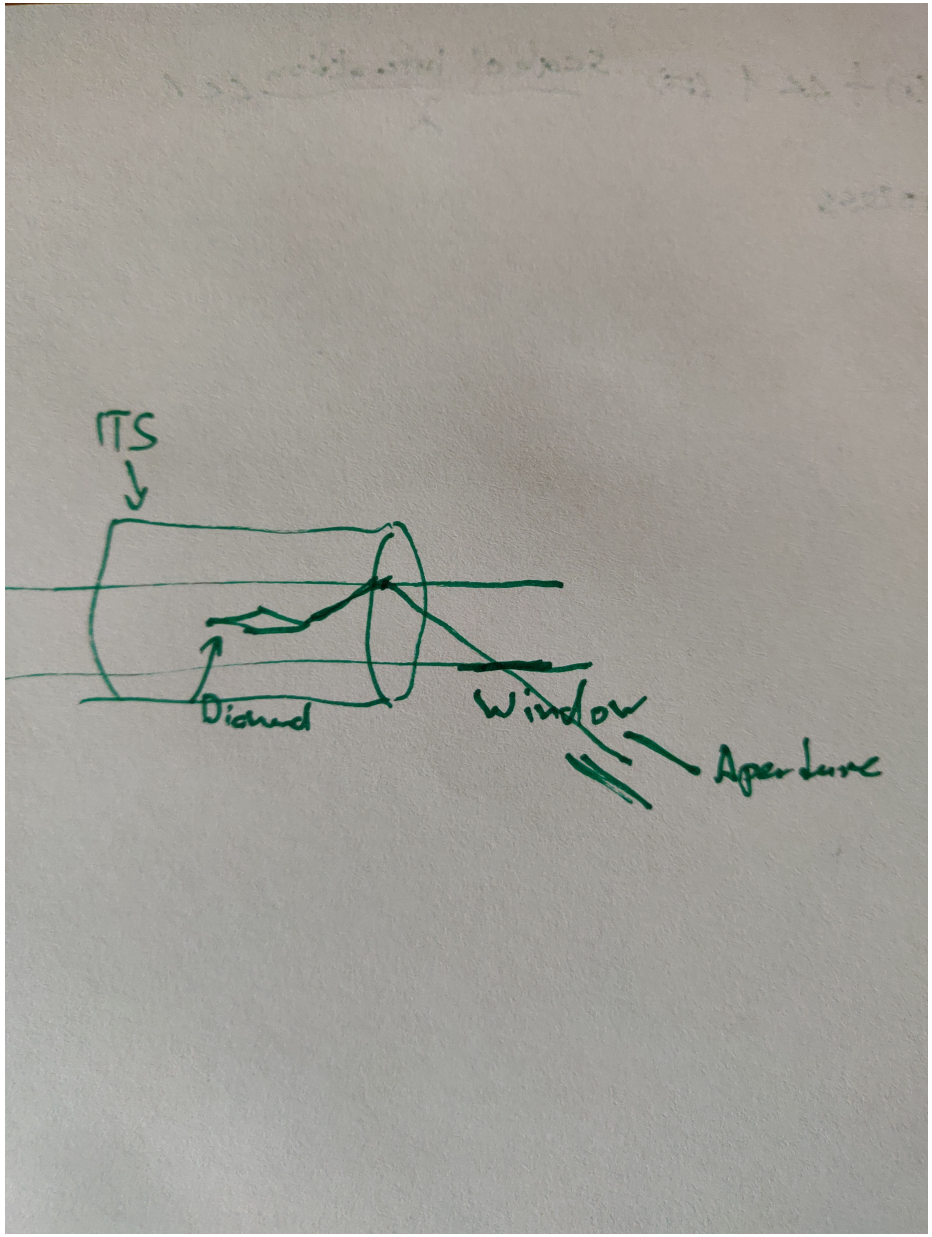
Decays, 3.75<η>4.25
Bremsstrahlung, 5.75<η>6.25
Decays, 5.75<η>6.25
counts/bin/event
p_T,γ (GeV/c)


ωt << 1 ⇔ λ << Scale of interaction
Consider
Unstable
t
One or two processes depending on wavelength →
Interference ↔ no Interference
Divide Spectrum by 1/E_γ (or:
dN_γ/dE · E
Hadronization?
fragmentation
Resonances
Decay scale
log E

A pp collision is visible

- 0.1 photons in 20-50 MeV
- $\rightarrow 10^7$ photons in visible range eV
- $r = 0.25cm$ pupils $\rightarrow$ few photons per event at 1m


CCD
Grating
Beam Pipe
No Grating:
No angle info ; trade for separation
Charged Particle
Diamond


ITS
Diaphragm
Window
Aperture