

three generations of matter  
(fermions)

interactions / forces  
(bosons)

I

II

III

u

up

c

charm

t

top

g

gluon

H

Higgs

d

down

s

strange

b

bottom

$\gamma$

photon

e

electron

$\mu$

muon

$\tau$

tau

W

W boson

$\nu_e$

electron  
neutrino

$\nu_\mu$

muon  
neutrino

$\nu_\tau$

tau  
neutrino

Z

Z boson

QUARKS

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GAUGE BOSONS  
VECTOR BOSONS

SCALAR BOSONS

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HYPOTHETICAL  
TENSOR BOSONS

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



























GAUGE BOSONS  
VECTOR BOSONS

SCALAR BOSONS

HYPOTHETICAL  
TENSOR BOSONS

QUARKS

LEPTONS

three generations of matter (fermions)			three generations of antimatter (antifermions)			interactions / forces (bosons)	
I	II	III	I	II	III		
 u up	 c charm	 t top	 $\bar{u}$ antiup	 $\bar{c}$ anticharm	 $\bar{t}$ antitop	 g gluon	 H Higgs
 d down	 s strange	 b bottom	 $\bar{d}$ antidown	 $\bar{s}$ antistrange	 $\bar{b}$ antibottom	 $\gamma$ photon	<b>GAUGE BOSONS</b> <b>VECTOR BOSONS</b>
 $e^-$ electron	 $\mu^-$ muon	 $\tau^-$ tau	 $e^+$ positron	 $\mu^+$ antimuon	 $\tau^+$ antitau	 $Z^0$ Z boson	
 $\nu_e$ electron neutrino	 $\nu_\mu$ muon neutrino	 $\nu_\tau$ tau neutrino	 $\bar{\nu}_e$ electron antineutrino	 $\bar{\nu}_\mu$ muon antineutrino	 $\bar{\nu}_\tau$ tau antineutrino	 $W^-$ W boson	

**SCALAR BOSONS**

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light  
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strange

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bottom

$\gamma$

photon

H

heavy  
Higgs

e

electron

$\mu$

muon

$\tau$

tau

W

W boson

A

pseudoscalar  
Higgs

$\nu_e$

electron  
neutrino

$\nu_\mu$

muon  
neutrino

$\nu_\tau$

tau  
neutrino

Z

Z boson

$H^\pm$

charged  
Higgs

QUARKS

LEPTONS

(PSEUDO)SCALAR BOSONS

GAUGE BOSONS  
VECTOR BOSONS

superpartners of SM fermions  
(sfermions, bosons)

superpartners of SM bosons  
(bosinos, fermions)

I

II

III

$\tilde{u}$

up  
squark

$\tilde{c}$

charm  
squark

$\tilde{t}$

stop

$\tilde{g}$

gluino

$\tilde{H}$

Higgsino

$\tilde{d}$

down  
squark

$\tilde{s}$

strange  
squark

$\tilde{b}$

sbottom

$\tilde{\gamma}$

photino

$\tilde{e}$

selectron

$\tilde{\mu}$

smuon

$\tilde{\tau}$

stau

$\tilde{W}$

wino

$\tilde{\nu}_e$

electron  
sneutrino

$\tilde{\nu}_\mu$

muon  
sneutrino

$\tilde{\nu}_\tau$

tau  
sneutrino

$\tilde{Z}$

zino

SQUARKS

SLEPTONS

SCALAR BOSONS

GAUGINOS

superpartners of SM fermions  
(sfermions, bosons)

superpartners of SM bosons  
(bosinos, fermions)

I

II

III

GAUGINOS HIGGSINOS

SQUARKS

SLEPTONS

$\tilde{u}$

up  
squark

$\tilde{c}$

charm  
squark

$\tilde{t}$

stop

$\tilde{g}$

gluino

$\tilde{h}$

light  
Higgsino

$\tilde{d}$

down  
squark

$\tilde{s}$

strange  
squark

$\tilde{b}$

sbottom

$\tilde{\gamma}$

photino

$\tilde{H}$

heavy  
Higgsino

$\tilde{e}$

selectron

$\tilde{\mu}$

smuon

$\tilde{\tau}$

stau

$\tilde{W}$

wino

$\tilde{H}^{\pm}$

charged  
Higgsino

$\tilde{\nu}_e$

electron  
sneutrino

$\tilde{\nu}_\mu$

muon  
sneutrino

$\tilde{\nu}_\tau$

tau  
sneutrino

$\tilde{Z}$

zino



superpartners of SM fermions  
(sfermions, bosons)

superpartners of SM bosons  
(bosinos, fermions)

I

II

III

GLUINO NEUTRALINOS

$\tilde{u}$

up  
squark

$\tilde{c}$

charm  
squark

$\tilde{t}$

stop

$\tilde{g}$

gluino

$\tilde{\chi}_1^0$

lightest  
neutralino

$\tilde{d}$

down  
squark

$\tilde{s}$

strange  
squark

$\tilde{b}$

sbottom

$\tilde{\chi}_2^0$

2<sup>nd</sup> lightest  
neutralino

$\tilde{e}$

selectron

$\tilde{\mu}$

smuon

$\tilde{\tau}$

stau

$\tilde{\chi}_1^\pm$

light  
chargino

$\tilde{\chi}_3^0$

2<sup>nd</sup> heaviest  
neutralino

$\tilde{\nu}_e$

electron  
sneutrino

$\tilde{\nu}_\mu$

muon  
sneutrino

$\tilde{\nu}_\tau$

tau  
sneutrino

$\tilde{\chi}_2^\pm$

heavy  
chargino

$\tilde{\chi}_4^0$

heaviest  
neutralino

CHARGINOS

SQUARKS

SLEPTONS