

TO
A.M
TE

Thursday

Apr 23

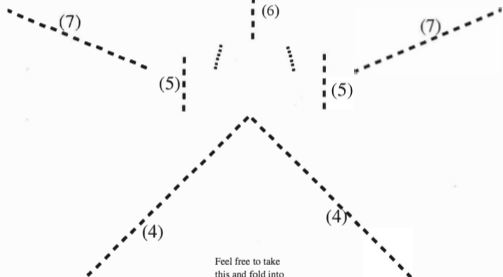
4:00 pm

Science quad

in front of

Olin

YS
VD
A



Feel free to take
this and fold into
an airplane.
Directions are
on the back

(5) (5)

Take this "flyer", fold it and use it!! We will also have
rubber-band airplanes at the event.

Fundamental Forces

Force	Strength	Major Role	Messenger
Strong	1	Holds nuclei together	gluons
Electromagnetic	10^{-2}	Holds atoms together	photons
Weak	10^{-12}	Radioactive decay	W^+ , W^- , Z^0
Gravitation	10^{-35}	Galaxy, star, and planet formation	graviton?

Lecture 23 — Concept Test 1

In the vertex diagram at right, a positron emits a W^+ . What is the particle that recoils from the interaction?

1. e^+

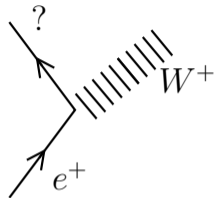
3. W^-

5. ν_e

2. e^-

4. Z^0

6. $\bar{\nu}_e$



Lecture 23 — Concept Test 2

A blue down quark (Bd) emits a gluon and becomes a green down quark (Gd). What are the colors of the gluon?

1. BG

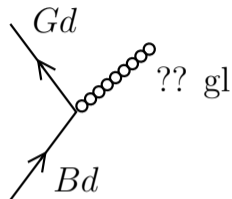
3. $\bar{G}B$

5. BB

2. $\bar{B}G$

4. $\bar{B}\bar{G}$

6. GG



Lecture 23 — Concept Test 3

Below are vertex diagrams showing possible interactions between particles and messenger particles. For each reaction, put up either

1. this vertex is allowed

2. this vertex is not allowed.

