10’th Rutgers Faraday Children’s Lecture Crew

Pictures courtesy of Carl Blesch & Nick Romanenko
Prof. gets instruction.

Proof Prof. owns coat.

Object in motion tends to stay in motion.
Object in motion tends to stay in motion.

\[ F = ma \]

More mass less motion.
Prof. and balloon (balloon on right)

Force reaction force. Balloon - air in balloons.
Prof. takes place of balloon.

Force reaction force.

Potentially dangerous!
Large jerky acceleration/force.
Note attempt to have push close to center of mass.
Prof. takes place of balloon.

Potential dangerous! Large jerky acceleration/force. Note attempt to have push close to center of mass.
Force reaction force in rotation. (twisting/turning force = torque)

Angular momentum conservation. (State of rotation stays constant.)
Waiter’s Tray Demo
Centripetal force
Standing waves

Natural vibration frequency of wine glass

Propagating vortex loop.
Standing waves
Bernoulli’s Principal
Disappearing beaker demo.

Nitrogen cannon.

Speed of light matching.
Hydrogen balloon

Pickle light.
Faraday effect $\Rightarrow$ changing magnetic field induces current in coil.

Nd$_2$Fe$_{14}$B magnet fall creates changing magnetic field in Cu tube & energy of fall goes to electrical current.

Meter deflection shows current flow.
rolling magnet creates changing magnetic field in Cu ramp & energy of fall goes to electrical current.

rolling magnet stays on ramp !!

induced-current drag most on center- side of magnet
Changing magnetic field in coil (AC current) $\Rightarrow$ induced current in Al disk which is repelled.

Induced current in 2'nd coil Lights bulb.
Force per nail demo.

Prof. (or baloney) sandwich.
Force per nail demo.
Dave’s favorite demo?
Rutgers Children’s Lecture
10 Great Years