

# 10'th Rutgers Faraday Children's Lecture Crew

Pictures courtesy of Carl Blesch & Nick Romanenko

**Jon  
Mayes**

**Ben  
Shappee**

**Matt  
Berry**

**Dave  
Maiullo**

**Rozalia  
Ziobro**



**Mark  
Croft**

**Grace  
Chen**

**Jonathan  
Myers**

**Jonathan  
Sloane**



**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.**



**Force reaction force.  
Balloon - air in balloons.**



**Prof. and balloon  
(balloon on right)**





**Force reaction force.**

**Prof. takes place of balloon.**

**Potentially  
dangerous !  
Large jerky  
acceleration/force.  
Note attempt to  
have push close  
to center of mass.**



Force reaction force.

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

Prof. takes place of balloon.







**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

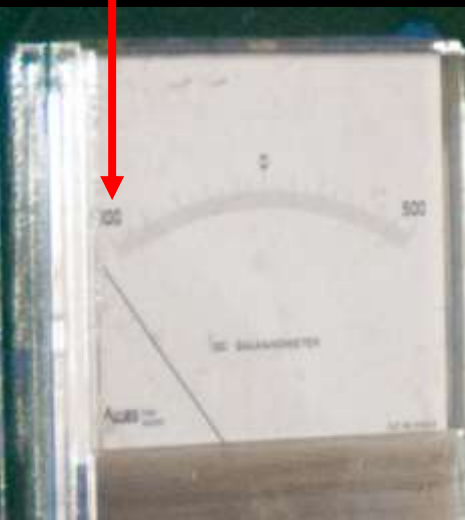


Pickle light.

# Super slow $\text{Nd}_2\text{Fe}_{14}\text{B}$ magnet fall demo



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



Meter deflection  
shows  
current flow.



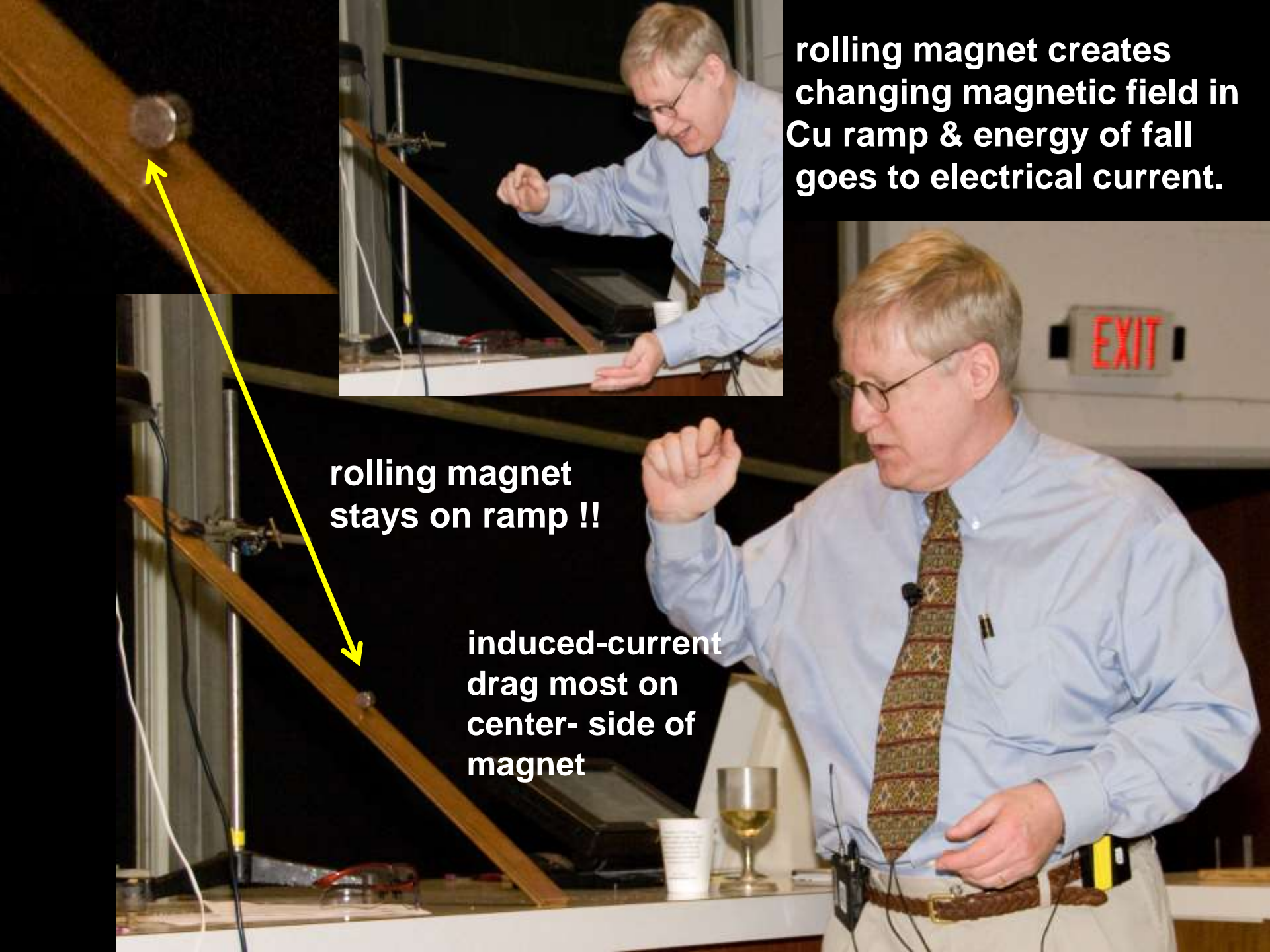
$\text{Nd}_2\text{Fe}_{14}\text{B}$  magnet fall creates  
changing magnetic field in Cu tube &  
energy of fall goes to electrical current.



**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**



# Ring Flinger Demo

Changing magnetic field in coil  
(AC current)  $\Rightarrow$  induced current  
in Al disk which is repelled.



Induced current in 2<sup>nd</sup> 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

