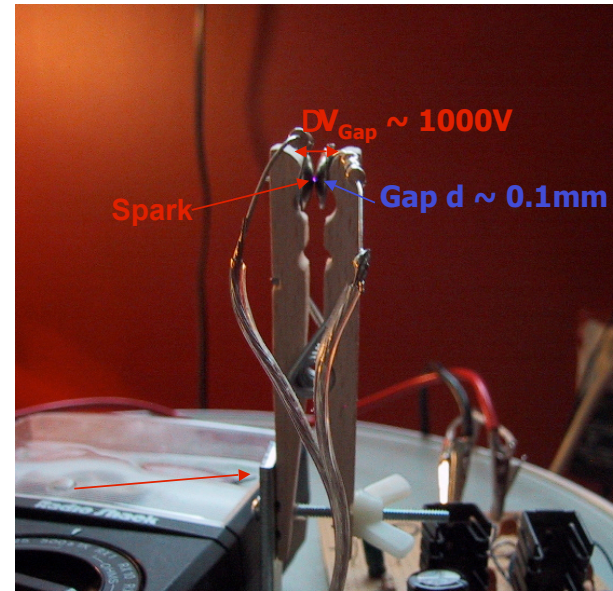


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Note: This is 2001 version of EB, 2005 has different spark gap (wires instead of thumbnails).



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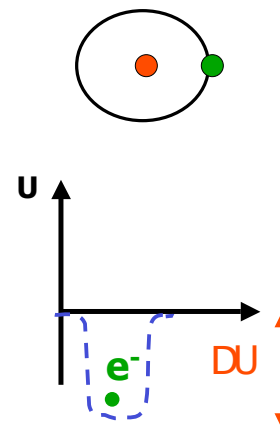
Experiment EB

- Electrical Breakdown
 - You have seen many examples
 - Lightning!
 - Sparks (e.g. Faraday Cage Demo!)
 - Fluorescent tubes
 - Study in more detail
 - Reminder: Ionization

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Ionization

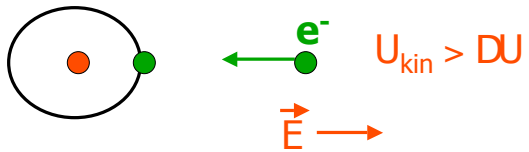


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- Electrons and nucleus bound together
- Electrons stuck in potential well of nucleus
- Need energy DU to jump out of well
- How to provide this energy?

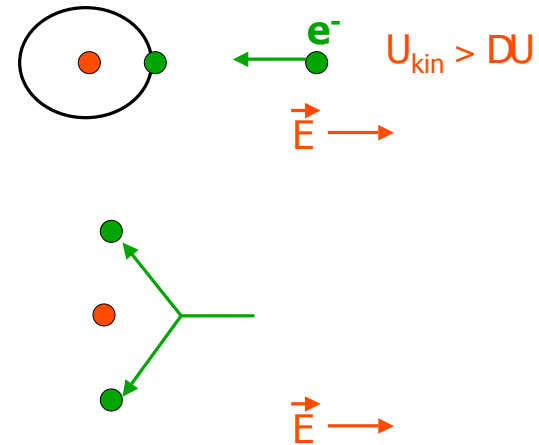
Impact Ionization



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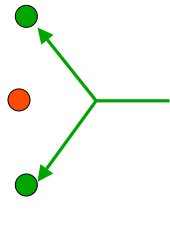
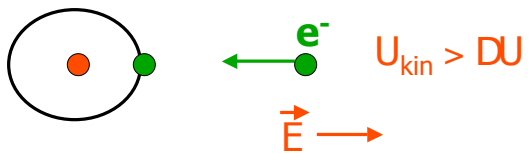
Impact Ionization



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Impact Ionization



- Define $V_{ion} = DU/q$
- Ionization potential

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Magnets

- Permanent Magnets



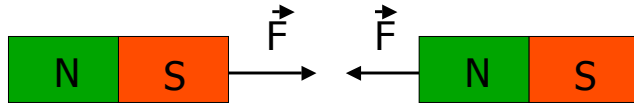
- Two poles (called 'north' and 'south')
 - Dipole
- Let's look at some properties

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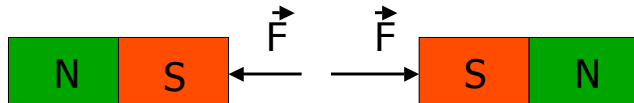
web.mit.edu/8.02x/www

Magnetic Force

- New Force between Magnets
- Unlike Poles attract



- Like Poles repel

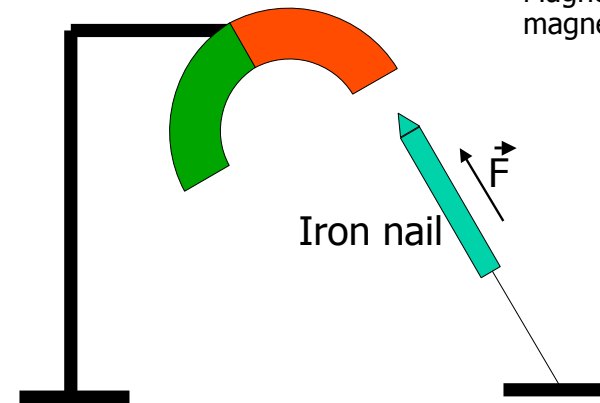


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Magnetic Force

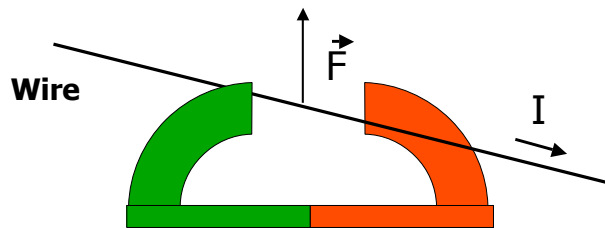
- Magnets also attract non-magnets!



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Magnet and Current

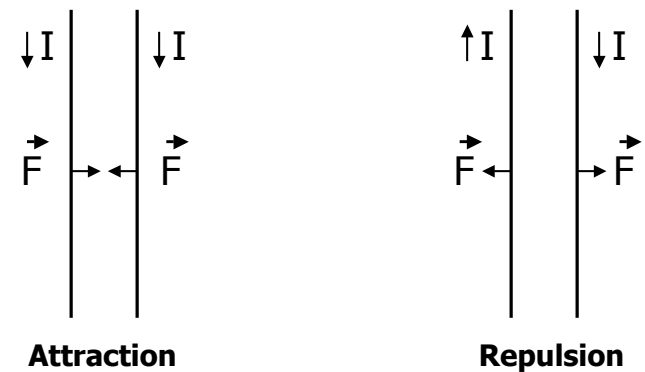


- Force on wire if $I \neq 0$
- Direction of Force depends on Sign of I
- Force perpendicular to I

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Current and Current



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