

Radio Waves (Kurtz, Kelsey)

(Morgan, Droz)

- convey Information, TV, Radar, CB/HAM Radios
- coagulate Blood
- speed = $c = 186,000 \text{ mph}$

Physics (4/12)

$$\begin{cases} \lambda > 1 \text{ mm} = 10^{-3} \text{ m} \\ f < 3 \times 10^4 \text{ Hz or } 10 \text{ kHz} \end{cases}$$

- Made by making a current in a wire & turning it on & off
- lightning

Microwaves (Delrala, Mitchell, Spears) (Spooner, Roe, Gubka) (Meyer, Bray)

- cook, transmit information
- speed = $c = 186,000 \text{ mph} = c = 3 \times 10^8 \text{ m/s}$

- passes radiation through food.

Infrared (Henry, Sniatowicz) (Lare, Bryant, Gierke) (Chie, Mause, Straub)

- cameras, night vision, meteorology, heating, engines/generators
- $300,000 \text{ km/s}$
- $186,000 \text{ mph}$
- $300-400 \text{ THz}$
- $\lambda = 10^{-5} - 10^{-6} \text{ m}$
- created by heat

Visible (Evans, Wersteil, Schmek) (Chance) (Turnage, Golder)

- seeing, photosynthesis, photovoltaics,
- $v = c = 3 \times 10^8 \text{ m/s} = 186,000 \text{ mph}$
- $f = 400 - 700 \text{ nm}$ $f \rightarrow 10^{15} \text{ Hz} - 10^{16} \text{ Hz}$
- vibrations of electrons

UV (Morris, Griffin, MacLachlan) (Countryman, Rukkila, Beronette) (Weber, Young)

- Kill Bacteria, Dentistry, Tanning, Blacklights
counterfeit \$\$\$ check
- $3 \times 10^8 \text{ m/s}$
- ~~7.5×10~~ $1 \text{ nm} - 750 \text{ nm}$
 ~~$10 \text{ nm} \rightarrow 400 \text{ nm}$~~
- Sun & Mercury Vapor, Passeelec. current through vapor

germicidal

X-Rays (Hicks, Webb) (Miller, Susack, Wall, EDavis) (Tackett, Kilgore)

- Medicine; Airport Security, Art (painting) test,

$$- v = 3 \times 10^8 \text{ m/s}$$

$$- \lambda = 10 \rightarrow 0.01 \text{ nm}$$

- created by tubes shooting electrons @ atoms (Metals)

Gamma Rays (Townsend, Hawks, Williams) (Worth, Marshall) (Watts, West)

- Turn Normal Topaz \rightarrow Blue Topaz

- Kill cancer

maintain freshness on vegetables

- Pipe leaks

$$- v = c = 3 \times 10^8 \text{ m/s}$$

$$\text{Hz} \cdot 10^{20} - 10^{24}$$

- Radioactive atoms

- Nuclear Bombs

- High temps

- Mag fields

Make ACT Question on spectrum