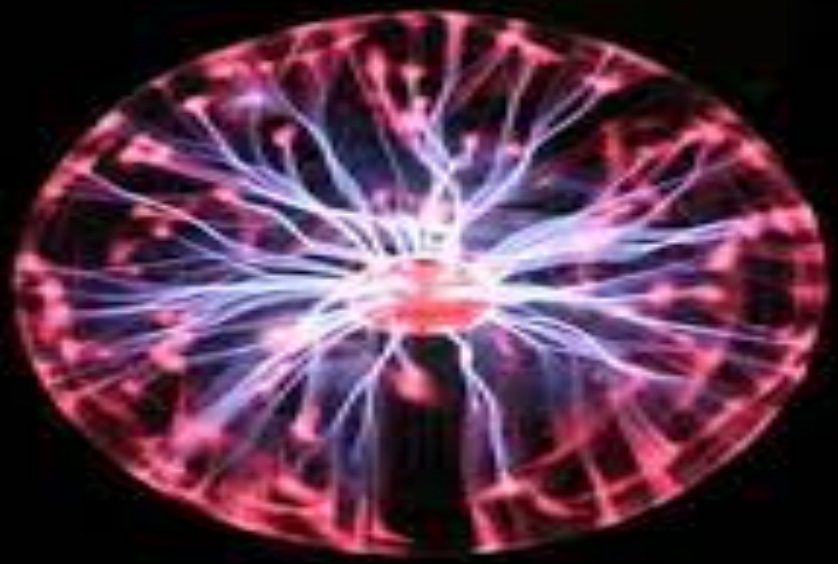
APPLICATION OF ELECTROSTATICS



ELECTROSTATICS

- 1. The study of the phenomena and characteristics of electric charges that are stationary or moving slowly is known as electrostatics.
- 2. Coulomb's law, which explains electrostatic phenomena, describes the forces that electric charges put on one another, despite the fact that electrostatically produced forces appear t

THE VAN DE GRAAFF GENE

- The first was built by Robert Van de Graaff in 1931 (based on original suggestions by Lord Kelvin) for use in nuclear physics research.
- A Van de Graaff generator is an **electrostatic generator** which uses a moving belt to accumulate electric charge on a hollow metal globe on the top of an insulated column, creating very high electric potentials. It produces very high voltage direct current (DC) electricity at low current levels

IMAGE OF VAN DE GRAAFF GENERETOR

XEROGRAPHY

- Xerography is a dry copying process based on electrostatics. The major steps in the process are the charging of the photoconducting drum, transfer of an image, creating a positive charge duplicate, attraction of toner to the charged parts of the drum, and transfer of toner to the paper. Not shown are heat treatment of the paper and cleansing of the drum for the next copy

IMAGE OF XEROGRAPHY

LASER PRINTERS

- **Laser printing** is an electrostatic digital printing process. It produces high-quality text and graphics (and moderate-quality photographs) by repeatedly passing a laser beam back and forth over a negatively-charged cylinder called a "drum" to define a differentially-charged image.

INK JET PRINTERS AND ELECTROSTATIC PAINTING

- Inkjet printing is a type of **computer printing that recreates a digital image by propelling droplets of ink onto paper and plastic substrates**. Inkjet printers are the most commonly used type of printer, and range from small inexpensive consumer models to expensive professional machines.

SMOKE PRECIPITATORS AND ELECTROSTATIC AIR CLEANING

- Another important application of electrostatics is found in air cleaners, both large and small. The electrostatic part of the process places excess (usually positive) charge on smoke, dust, pollen, and other particles in the air and then passes the air through an oppositely charged grid that attracts and retains the charged particl
- Large electrostatic precipitators are used industrially to remove over 99 of the particles from stack gas emissions associated with the burning of coal and oil. Home precipitators, often in conjunction with the home heating and air conditioning system, are very effective in removing polluting particles, irritants, and allergens