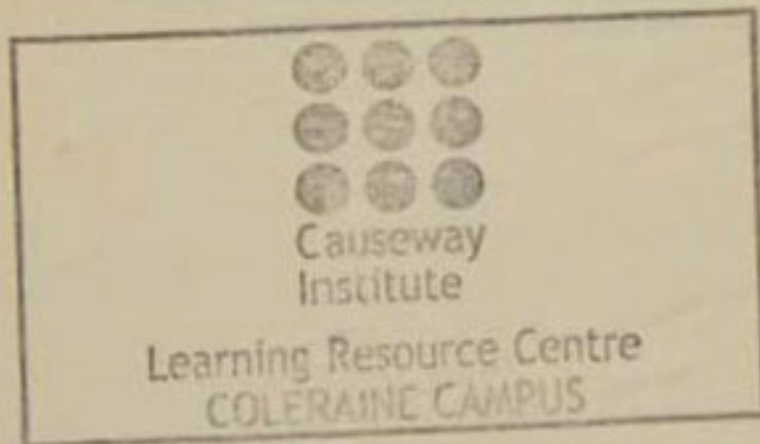


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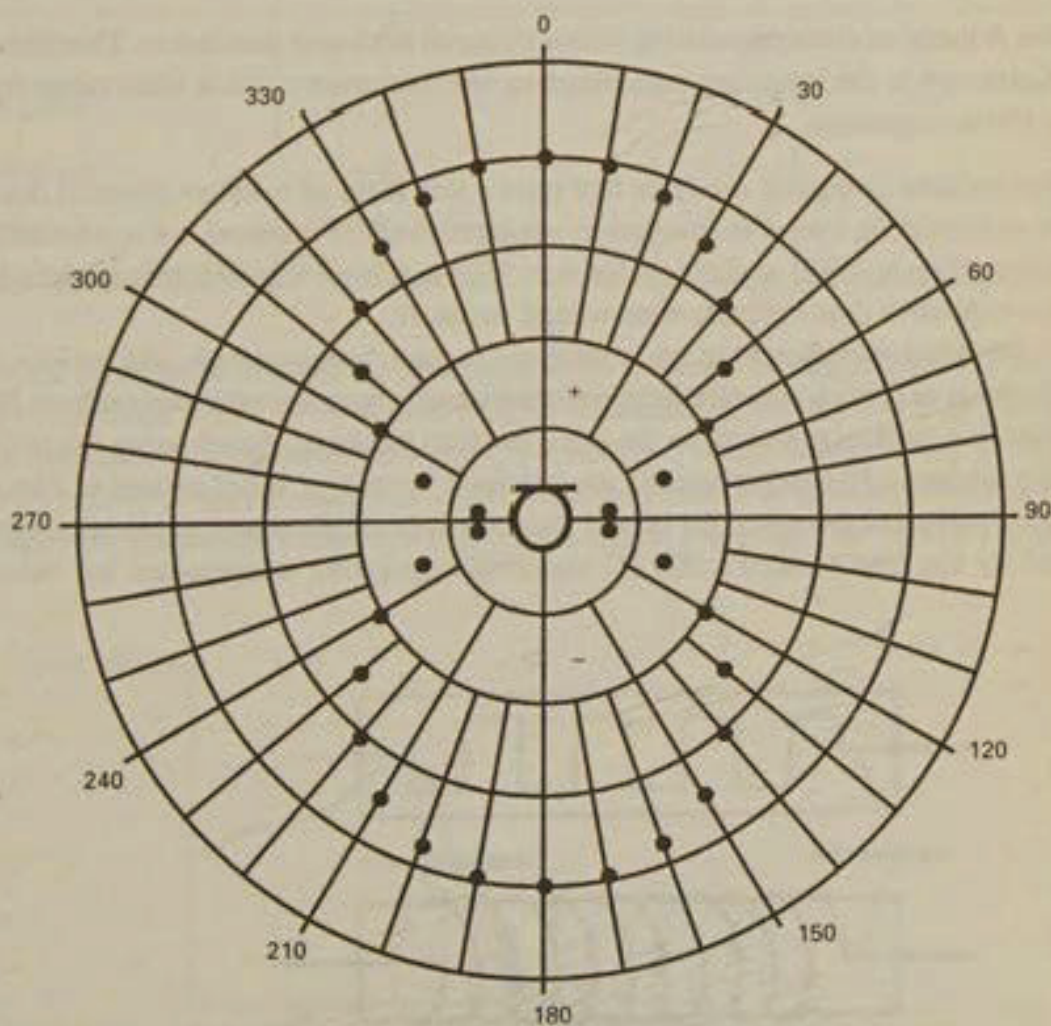
the surface of a nearby metal, resulting in ionization of the atom. The electrons are normally prevented from leaving the atom by a potential barrier equal to the ionization potential of the atom. This barrier may be distorted by an electric field in a similar manner to that occurring in field emission, allowing electrons to escape.

field-ion microscope An instrument for studying the surface of a solid, usually a metal, by subjecting it to $\triangleright$ field ionization. The form is identical to the $\triangleright$ field-emission microscope but the voltage is applied in the opposite direction. Low-pressure helium is allowed into the microscope and helium ions, formed at the surface of the tip, are accelerated to the fluorescent screen to form the image. Atomic vibrations, which affect the resolution, are minimized by holding the tip at liquid helium or hydrogen temperature; individual atoms of the metal can be resolved. The structure of alloys, the structure and behaviour of surfaces, and adsorption on the metal surface can be studied.

field programmable gate array $\triangleright$ FPGA.

FIFO *Abbrev. for* first in, first out, a type of memory system.

figure-eight microphone A $\triangleright$ microphone with a directional response pattern described by $\cos\phi$, where ϕ is the angle of incidence of the sound (see diagram). Sound



Idealized directional response of a **figure-eight microphone** (scale in degrees)