

Photocathodes for electron accelerators

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ABSTRACT

Photocathodes were at the heart of quantum physics development in the early 19th century, beginning with Einstein's explanation of the photoelectric effect. Today, photocathodes are part of many high technology devices like night googles or photomultipliers. With the development of fast lasers, photocathodes became very interesting candidates for electron accelerator applications where nanoseconds or even shorter electron bunches are required. Both metallic or semiconductor photocathodes are used in accelerators worldwide. After a short theoretical comparison of the photoemission process in these two types of cathodes, the paper will describe the typical manufacturing procedure and how these cathodes are operated in accelerator applications.