

1. Record Nr.	UNISA996418436003316
Titolo	Modern developments in vacuum electron sources // Georg Gaertner, Wolfram Knapp, Richard G. Forbes, editors
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2020] ©2020
ISBN	3-030-47291-4
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XVIII, 597 p. 300 illus., 183 illus. in color.)
Collana	Topics in applied physics ; ; Volume 135
Disciplina	621.381
Soggetti	Vacuum microelectronics Field emission
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Historical development and advanced new applications of vacuum electron sources -- State of the art and future perspectives of Scandate cathodes -- Review of impregnated and reservoir Ba dispenser cathodes -- New developments in Ba oxide cathodes -- Electron sources for medical X-ray tubes -- High brightness cathodes for high resolution electron beam applications -- Progress in field electron emission science -- Carbon-based field emitters, properties and applications -- Explosive electron emission of carbon based cathodes and applications -- Photocathodes.
Sommario/riassunto	This book gives an overview of modern cathodes and electron emitters for vacuum tubes and vacuum electron devices in general. It covers the latest developments in field emission theory as well as new methods towards improving thermionic and cold cathodes. It addresses thermionic cathodes, such as oxide cathodes, impregnated and scandate cathodes, as well as photocathodes and field emitters – the latter comprising carbon nanotubes, graphene and Spindt-type emitter arrays. Despite the rise and fall of the once dominant types of vacuum tubes, such as radio valves and cathode ray tubes, cathodes are continually being improved upon as new applications with increased demands arise, for example in electron beam lithography, high-power and high-frequency microwave tubes, terahertz imaging and electron

sources for accelerators. Written by 17 experts in the field, the book presents the latest developments in cathodes needed for these applications, discussing the state of the art and addressing future trends.
