Record Nr. UNINA9910349504603321 Autore **Dudnikov Vadim** Titolo Development and Applications of Negative Ion Sources / / by Vadim Dudnikov Pubbl/distr/stampa Cham:,: Springer International Publishing:,: Imprint: Springer,, 2019 **ISBN** 3-030-28437-9 Edizione [1st ed. 2019.] Descrizione fisica 1 online resource (xiv, 346 pages): illustrations Collana Springer Series on Atomic, Optical, and Plasma Physics, , 1615-5653;; 110 539.7 Disciplina 541.372 Plasma (Ionized gases) Soggetti Particle acceleration **Optics** Electrodynamics Plasma Physics Particle Acceleration and Detection, Beam Physics Classical Electrodynamics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Chapter1: Introduction -- Chapter2: Charge exchange Technologies Nota di contenuto Control of Flow of accelerated particles -- Chapter3: Methods of negative ion beam production -- Chapter4: Surface Plasma Method for negative ion beam production -- Chapter5: Surface Plasma negative ion Sources -- Chapter6: Transportation of high brightness negative ion beams, space charge compensation, Instability -- Chapter7: General Remarks on the Surface Plasma Method of negative ion beams production -- Bibliography. This book covers the development of sources of negative ions and their Sommario/riassunto application in science and industry. It describes the physical foundations and implementation of the key methods of negative ion production and control, such as charge exchange, thermionic emission, secondary emission (sputtering) and surface-plasma sources, as well as the history of their development. Following on from this essential

foundational material, the book goes on to explore transport of negative ion beams, and beam-plasma instabilities. With exposition accessible at the graduate level, and a comprehensive bibliography, this book will appeal to all students and researchers whose work concerns ion sources and their applications to accelerators, beam physics, storage rings, cyclotrons, and plasma traps. .