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Cathodic Arcs

From Fractal Spots to Energetic Condensation

Cathodic Arcs: From Fractal Spots to Energetic Condensation is the first book in over a decade dedicated to the physics and technology of cathodic arcs. It includes a detailed account of arc history, a textbook-like introduction to cathode phenomena, and some basic physics of expanding plasmas; it deals with the infamous macroparticle issue and describes a host of practical plasma filter solutions. In contrast to previous books on cathodic arcs, the focus is on the relation of arc plasmas and their properties to surface modification and thin film deposition. The book contains sections on basic plasma physics and thin film materials science. It also deals with practical issues of coatings such as stress control and the often-underrated issue of the coating's color. By stressing the fractal nature of cathode spots, the theme of fluctuations can be found throughout the book: fluctuations affect all plasma properties and thereby have consequences for plasma-based surface modifications and film growth. Detailed explanations are complemented by compilations of plasma and materials data arranged in Periodic Tables.

Cathodic Arcs: From Fractal Spots to Energetic Condensation is written with researchers and advanced students in the fields of materials science and plasma physics in mind. It is suitable both as a reference work for the expert as well as an introduction for newcomers to the interdisciplinary fields of plasma-surface interaction and plasma-assisted deposition of thin films.

PHYSICS

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