

1. Record Nr.	UNINA9910792491703321
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Titolo	Metal Impurities in Silicon-Device Fabrication [[electronic resource] /] / by Klaus Graff
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 1995
ISBN	3-642-97593-3
Edizione	[1st ed. 1995.]
Descrizione fisica	1 online resource (IX, 216 p.)
Collana	Springer Series in Materials Science, , 0933-033X ; ; 24
Disciplina	620.44
Soggetti	Materials—Surfaces Thin films Electronics Microelectronics Inorganic chemistry Surfaces and Interfaces, Thin Films Electronics and Microelectronics, Instrumentation Inorganic Chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1. Introduction -- 2. Common Properties of Transition Metals -- 2.1 General Behavior -- 2.2 Contamination of Silicon Wafers -- 2.3 Impact on Device Performance -- 3. Properties of Transition Metals in Silicon -- 3.1 Solubilities -- 3.2 Diffusivities -- 3.3 Dissolved Impurities -- 3.4 Precipitated Metals -- 4. Properties of the Main Impurities -- 4.1 Iron -- 4.2 Nickel -- 4.3 Copper -- 4.4 Molybdenum -- 4.5 Palladium -- 4.6 Platinum -- 4.7 Gold -- 5. Properties of Rare Impurities -- 5.1 Scandium -- 5.2 Titanium -- 5.3 Vanadium -- 5.4 Chromium -- 5.5 Manganese -- 5.6 Cobalt -- 5.7 Zinc -- 5.8 Rhodium -- 5.9 Silver -- 5.10 Tantalum -- 5.11 Tungsten -- 5.12 Mercury -- 6. Detection Methods -- 6.1 Detection of Total Impurity Content -- 6.2 Detection of Dissolved Impurities -- 6.3 Detection of Precipitates -- 7. Requirements of Modern Technology -- 7.1 Reduction of Contamination -- 8. Gettering of Impurities -- 8.1 Gettering Mechanisms -- 8.2 Control of Gettering Efficiency -- 9. Conclusion and

Sommario/riassunto

Metal Impurities in Silicon-Device Fabrication treats the transition-metal impurities generated during silicon sample and device fabrication. The different mechanisms responsible for contamination are discussed, and a survey given of their impact on device performance. The specific properties of main and rare impurities in silicon are examined, as well as the detection methods and requirements in modern technology. Finally, impurity gettering is studied along with modern techniques to determine gettering efficiency. In all of these subjects, reliable and up-to-date data are presented. The monograph provides a thorough review of the results of recent scientific investigations, as well as of the relevant data and properties of the various metal impurities in silicon.
