

1. Record Nr.	UNINA9910449839703321
Titolo	Preventing the forward contamination of Mars [[electronic resource] /] / Committee on Preventing the Forward Contamination of Mars, Space Studies Board, Division on Engineering and Physical Sciences, National Research Council
Pubbl/distr/stampa	Washington, D.C., : National Academies Press, 2006
ISBN	1-280-44720-6 9786610447206 0-309-65262-6
Descrizione fisica	1 online resource (166 p.)
Disciplina	523.43
Soggetti	Space flight to Mars Space microbiology Microbial contamination - Prevention Electronic books. Mars (Planet) Exploration
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	""Front Matter""; ""Preface""; ""Acknowledgment of Reviewers""; ""Contents""; ""Executive Summary""; ""1 Introduction""; ""2 Policies and Practices in Planetary Protection""; ""3 Future Mars Exploration: The Rolling Wave""; ""4 Environments on Mars Relative to Life""; ""5 Expanding Our Knowledge of the Limits of Life on Earth""; ""6 Advances in Technologies for Life Detection and Bioburden Reduction""; ""7 Assessing Nonliving Contaminants of Concern""; ""8 A Path Forward for Planetary Protection in the 21st Century""; ""9 Transition Process and Time Line""; ""Appendixes"" ""A Biographical Sketches of Committee Members and Staff"" ""B Recommendations from Two Previous NRC Reports on Forward Contamination""; ""C Summary of Procedures Currently Used to Assess Bioburden in Spacecraft Assembly Clean Rooms and on Spacecraft""; ""D History of Recommended Values for Probability of Growth""; ""E Approaches to Bioburden Reduction for Lander Missions to Mars""; ""F

2. Record Nr.	UNINA9910151934503321
Autore	Farber Michael
Titolo	Invitation to Topological Robotics [[electronic resource] /] / Michael Farber
Pubbl/distr/stampa	Zuerich, Switzerland, : European Mathematical Society Publishing House, 2008
ISBN	3-03719-554-1
Descrizione fisica	1 online resource (143 pages)
Collana	Zurich Lectures in Advanced Mathematics (ZLAM)
Classificazione	58-xx57-xx
Soggetti	Analytic topology Mechanical engineering Global analysis, analysis on manifolds Manifolds and cell complexes
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	The book discusses several selected topics of a new emerging area of research lying on the interface between topology and engineering. The first main topic of the book is topology of configuration spaces of mechanical linkages. These manifolds arise in various fields of mathematics and in other sciences, e.g. engineering, statistics, molecular biology. To compute Betti numbers of these configuration spaces we apply a new technique of Morse theory in the presence of an involution. A significant result of topology of linkages presented in the book is a solution of a conjecture of Kevin Walker which states that the relative sizes of bars of a linkage are determined, up to certain equivalence, by the cohomology algebra of the linkage configuration space. The book also describes a new probabilistic approach to topology of linkages which treats the bar lengths as random variables and studies mathematical expectations of Betti numbers. The second

main topic of the book is topology of configuration spaces associated to polyhedra. The book gives an account of a beautiful work of S.R. Gal suggesting an explicit formula for the generating function encoding Euler characteristics of these spaces. Next we study the knot theory of a robot arm focusing on a recent important result of R. Connelly, E. Demain and G. Rote. Finally, the book investigates topological problems arising in the theory of robot motion planning algorithms and studies the homotopy invariant $TC(X)$ measuring navigational complexity of configuration spaces. The book is intended as an appetizer and will introduce the reader to many fascinating topological problems motivated by engineering.
