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Nota di contenuto	""Front Matter""; ""Acknowledgment of Reviewers""; ""Preface""; ""Contents""; ""Summary""; ""1 Introduction""; ""2 Design Challenge: Simulation of Human Physiology""; ""3 Design Challenge: Mannequin Under-Ensemble Sensing""; ""4 Design Challenge: Robotic Capability for PETMAN""; ""5 Design Challenge: PETMAN Surface Structure and Materials""; ""6 Design Challenge: An Integrated PETMAN System""; ""7 A Complementary Approach to Meeting PETMAN System Goals""; ""8 Overarching Conclusions and Recommendations""; ""Appendixes""; ""Appendix A: Statement of Task"" ""Appendix B: Description of the PETMAN System Feasibility Study"""" Appendix C: Committee Biographic Information""; ""Appendix D: Open Session Presentation Summaries""
Sommario/riassunto	There is an ongoing need to test and ensure effectiveness of personal

protective equipment that soldiers use to protect themselves against chemical warfare agents. However, testing using human subjects presents major challenges and current human-size thermal mannequins have limited testing capabilities. The U.S. Department of Defense (DOD) along with their counterparts from other countries are seeking to develop more human like mannequins, which would include features like human motion, in order to carry out more advanced chemical testing. At the request of DOD Product Director, Test Equipment, Strategy and Support, the National Research Council formed an ad hoc committee to evaluate the feasibility of developing an advanced humanoid robot, or Protection Ensemble Test Mannequin (PETMAN) system that meets the DOD requirements. The book concludes that although most of the individual requirements can technically be met, fulfilling all of the requirements is currently not possible. Based on this conclusion the committee recommends that DOD considers three issues, prioritization of current system requirements, use qualified contractor for particular technical aspects, incorporate complementary testing approaches to the PETMAN system.