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Titolo	At the Size Limit - Effects of Miniaturization in Insects // by Alexey A. Polilov
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Descrizione fisica	1 online resource (X, 325 p. 149 illus., 53 illus. in color.)
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Soggetti	Animal anatomy Animal physiology Invertebrates Animal ecology Animal Anatomy / Morphology / Histology Animal Physiology Animal Ecology
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Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	1. Introduction -- 2. Methods of collecting and studying microinsects -- 3. Structure of the principal groups of microinsects -- 3.1. The smallest free-living insects (Coleoptera: Ptiliidae, Corylophidae) -- 3.2. The smallest parasitoid insects (Hymenoptera: Mymaridae, Trichogrammatidae; Strepsiptera) -- 3.3. Hemimetabolous microinsects (Psocoptera: Liposcelididae; Thysanoptera: Thripidae) -- 4. Peculiar miniature-related structural features of different organ systems -- 5. Changes in relative size of organs that accompany decrease in body size -- 6. Effects of miniaturization on the different stages of the life cycle -- 7. Analysis of peculiar miniaturization-related structural features in different groups of animals -- 8. Effects of miniaturization on the physiology and behaviour of insects -- 9. Limiting factors of decrease in body size -- 10. The consequences of miniaturization for insect ecology and evolution -- 11. Conclusions -- 12. References -- 13. Appendix (Tables of homology between morphological terms used in descriptions of morphology in insects of different orders).

This book addresses microinsects, their structure and their differences from larger relatives. Moreover, it discusses structural changes that accompany extreme diminution in living organisms, evolutionary inventions that help insects to live in the microworld, and factors that limit the size of animals. It also takes a careful look at the potential benefits of the study of microinsects for solving biotechnological and fundamental scientific problems. Miniaturization is not only a trend in technology: it is also one of the trends in the evolution of life. Many of the problems modern engineers are still struggling with were solved by nature millions of years ago. The world of microscopic organisms, invisible to the naked eye, is all around us. Microinsects — the extremely diverse range of miniature insects less than a millimeter long — are one of the most intriguing components of this microworld. Having evolved to the size of unicellular organisms, the smallest insects managed not only to preserve their structural complexity, but also to evolve some novel features not found in larger insects.
