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Nota di contenuto	Introduction / Purvesh Thakker and Gary Swenson -- Management and implementation of a cubesat interdisciplinary senior design course / Purvesh Thakker and Gary Swenson -- Small satellites 101: University of Hawaii small-satellite program / Justin M. Akagi, Tyler N. Tamashiro, Wade G. Tonaki, and Wayne A. Shiroma -- Survey of atmospheric and other research projects employing small university satellites / Purvesh Thakker and Gary Swenson -- ION-1 and 2-cubesat optical remote sensing instruments / Purvesh Thakker, Gary Swenson, and Lara Waldrop -- Cubesats for GPS scintillation science / Bryan Doyle ... [et al.] -- PowerSphere Development: an example in using Gossamer technology on picosatellites / E.J. Simburger, J.L.Lin and S.E. Scarborough -- Multi-application survivable tether (MAST) experiment / Nestor Voronka, Robert Hoyt, and Tyrel Newton -- Attitude determination, control, and related operation of the Illinois observing nanosatellite / Andrew Pukniel -- Microthruster propulsion / Lance K. Yoneshige, Lynnette E.S. Ramirez, and Carlos F.M. Coimbra -- Novel

propulsion system for nanosatellites / Filip Rysanek -- Power systems for cubesat-class satellites / Purvesh Thakker and Jonathan W. Kimball -- Picosatellite power system design / E.J. Simburger -- Evolution of the ION cubesat software architecture / Leon Arber -- Cubesat radio communication systems / Alex Rein -- Ground station design: mobile approach / Dylan J. Ichikawa ... [et al.] -- Retrodirective antenna systems for cubesats / Monte K. Watanabe, Justin M. Akagi, and Wayne A. Shiroma -- Appendix. Case study: overview of ION as applied to atmospheric research and technology testing problems / Purvesh Thakker ... [et al.].

Sommario/riassunto

Miniaturized satellites are paving the way to a completely new era of faster and less expensive access to space by using smaller payloads. Pico- and nanosatellite activity has expanded greatly in the last decade, due in large part to activity within the university satellite community. Emergence of Pico- and Nanosatellites for Atmospheric Research and Technology Testing describes the current state of this exciting technology and includes a variety of detailed examples that will help the reader identify appropriate analytical models, simulations, and technologies in the development of miniaturized satellite missions.