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Nota di contenuto	1. The Charm++ programming model / Laxmikant V. Kale and Gengbin Zheng -- 2. Designing Charm++ programs / Laxmikant V. Kale -- 3. Tools for debugging and performance analysis / Filippo Gioachin, Chee Wai Lee, Jonathan Lifflander, Yanhua Sun and Laxmikant V. Kale -- 4. Scalable molecular dynamics with NAMD / James C. Phillips, Klaus Schulten, Abhinav Bhatele, Chao Mei, Yanhua Sun, Eric J. Bohm and Laxmikant V. Kale -- 5. OpenAtom : Ab initio molecular dynamics for petascale platforms / Glenn J. Martyna, Eric J. Bohm, Ramprasad Venkataraman, Laxmikant V. Kale and Abhinav Bhatele -- 6. N-body simulations with ChaNGa / Thomas R. Quinn, Pritish Jetley, Laxmikant V. Kale and Filippo Gioachin -- 7. Remote visualization of cosmological data using salsa / Orion Sky Lawlor and Thomas R. Quinn -- 8. Improving scalability of BRAMS : a regional weather forecast model / Eduardo R. Rodrigues, Celso L. Mendes and Jairo Panetta -- 9. Crack propagation analysis with automatic load balancing / Orion Sky Lawlor, M. Scot Breitenfeld, Philippe H. Geubelle and Gengbin Zheng -- 10. Contagion diffusion with EpiSimdemics / Keith R. Bisset, Ashwin M. Aji,

	Tariq Kamal, Jae-Seung Yeom, Madhav V. Marathe, Eric J. Bohm and Abhishek Gupta.
Sommario/riassunto	This volume highlights the use of Charm++ in a wide variety of scientific and engineering fields. It emphasizes the adaptivity, asynchrony, and message-driven execution and proposes design choices for application development. With illustrative examples throughout, the text describes associated tools, parallelization strategies, and parallel performance. It also explains the requirements for writing any computational science and engineering application, including those related to molecular dynamics, quantum chemistry, cosmological simulations and visualizations, and weather simulations--