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	Sommario/riassunto	Understanding of the human brain functioning currently represents a challenging problem. In contrast to usual serial computers and complicated hierarchically organized artificial man-made systems, decentralized, parallel and distributed information processing principles are inherent to the brain. Besides adaptation and learning, which play a crucial role in brain functioning, oscillatory neural activity, synchronization and resonance accompany the brain work. Neural-like oscillatory network models, designed by the authors for image processing, allow to elucidate the capabilities of dynamical, synchronization-based types of image processing, presumably exploited by the brain. The oscillatory network models, studied by means of computer modeling and qualitative analysis, are presented

and discussed in the book. Some other problems of parallel distributed information processing are also considered, such as a recall process from network memory for large-scale recurrent associative memory neural networks, performance of oscillatory networks of associative memory, dynamical oscillatory network methods of image processing with synchronization-based performance, optical parallel information processing based on the nonlinear optical phenomenon of photon echo, and modeling random electric fields of quasi-monochromatic polarized light beams using systems of superposed stochastic oscillators. This makes the book highly interesting to researchers dealing with various aspects of parallel information processing.