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The book contains 29 revised, edited, and formatted articles written by international experts in physical and chemical kinetics, physics of low-temperature and cluster plasma, physics of shock and detonation waves, physics and chemistry of clusters and nanoparticles, combustion and atmospheric chemistry, physics and chemistry of high-speed flow, plasma and laser chemistry, plasma-, laser-, and combustion-assisted technologies. The book provides an overview of the state-of-the-art in these interrelated disciplines and is published in connection with the 9th International Symposium on Nonequilibrium Processes, Plasma, Combustion, and Atmospheric Phenomena held in Sochi, Russia, October 5–9, 2020. The Symposium was dedicated to the 90th anniversary of the P. I. Baranov Central Institute of Aviation Motors, the head organization of aerospace science and technology in the Soviet Union and Russian Federation. The contributions are arranged in two parts: Kinetics, Clusters, and Nanostructures; and Ignition, Combustion, and Power Plants.

The book addresses to practicing engineers and researchers and can serve as a reference book for graduate studies in physics of clusters and aerosol particles, laser and low-temperature plasma physics, combustion, and atmospheric chemistry.

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