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	Sommario/riassunto	This volume collects the most important contributions from four minisymposia from ICIAM 2019. The papers highlight cutting-edge

applications of Cartesian CFD methods and describe the employed algorithms and numerical schemes. An emphasis is laid on complex multi-physics applications like magnetohydrodynamics, combustion, aerodynamics with fluid-structure interaction, solved with various discretizations, e.g. finite difference, finite volume, multiresolution or lattice Boltzmann CFD schemes. Software design aspects and parallelization challenges are also considered. The book is addressed to graduate students and scientists in the fields of applied mathematics and computational engineering.