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Sommario/riassunto	This open access volume compiles student reports from the 2022 Simula Summer School in Computational Physiology. The reports provide an overview of some tools available to model physiology in excitable tissues across scales and scientific questions. In 2022, Simula held the eighth annual Summer School in Computational Physiology in collaboration with the University of Oslo (UiO) and the University of California, San Diego (UCSD). Each year, the course focuses on modeling excitable tissues, with a special interest in cardiac physiology and neuroscience. Group research projects conducted by graduate students from around the world result in reports addressing problems of physiological importance. Reports may not necessarily represent new scientific results; rather, they can reproduce or supplement earlier studies. Reports from seven of the summer projects are included as separate chapters. The topics represented include multiscale mechanics, electrophysiology, pharmacology, and machine learning. .