

This volume contains articles resulting from research projects initiated during the CEMRACS 2004 entitled *Mathematics and applications to biology and medicine*.

The CEMRACS is an annual summer school promoted by the SMAI (French Society of Applied and Industrial Mathematics), whose goal is to create and reinforce interdisciplinary collaborations between applied mathematicians and scientists of other fields from academia and industry.

The CEMRACS 2004 took place from the 26th of July to the 3rd of September 2004 at the CIRM (Centre International de Rencontres Mathématiques, Marseille, France). The first week was devoted to lectures on general interest topics: numerical simulation in biology and medicine, medical imaging, biostatistics. During the other five weeks, the participants worked in teams on projects proposed by an industrial or an academic partner. Each team was composed of young researchers assisted by one or more senior researchers.

The CEMRACS 2004 has been attended by about 130 researchers from 15 different citizenships, including mathematicians, biologists, medical doctors and biomechanical engineers. It has received the label “European Summer University” delivered by the French government.

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