深圳北理莫斯科大学
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SHENZHEN MSU-BIT UNIVERSITY

应用数学讲座

Научный Семинар по Прикладной Математике

Research Seminar on Applied Mathematics

应用数学报告（70）

报告人 / Докладчик / Speaker: Kurganov 教授 （南方科技大学）

题目 / Название / Title: Numerical Methods for Chemotaxis and Related Systems

时间 / Время / Time：20 Nov. 2022, 10:00-10:50

地点 / Место / Venue：主楼 336

摘要 / Аннотация / Abstract:
I will introduce several numerical methods for several chemotaxis models including coupled fluid-chemotaxis one. There are several challenges one faces while solving this type of parabolic-parabolic or parabolic elliptic systems of PDEs. First, the studied equations model the aggregation phenomena and the solution may be very spiky or may even develop delta-type singularities in finite time. Second, the convective part of the chemotaxis system is not necessarily hyperbolic and thus straightforward central-difference approximations of the spatial derivatives may lead to severe instabilities. Third, solving chemotaxis and fluid-chemotaxis models in nonrectangular domains may be highly nontrivial as the boundary conditions in such domains may be not easy to enforce.

Kurganov 教授简介：

Alexander Kurganov graduated from the Moscow State University in 1989 and then earned his PhD degree in Tel Aviv University in 1998. After the three-year postdoc position at the University of Michigan, he moved to Tulane University, where he was an Assistant/Associate/Full Professor from 2001-2019. In 2016, Alexander Kurganov moved to SUSTech as a Full Professor, and was promoted to Chair Professor in 2019. In 2018, he was selected for the 1000 Talents Program for Foreign Experts in China. Alexander Kurganov wrote more that 130 papers and he is among 2% of the most cited mathematicians in the word: he has more than 2500 citations according to MathSciNet and almost 8500 citations according to Google Scholar.

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