学术报告会

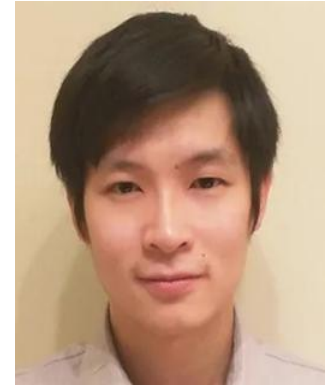**时间：2023年2月17日 10:30---11:30**
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Rethinking the Micro-foundation of Opinion Dynamics

梅文俊

北京大学工学院力学与工程科学系助理教授、研究员

Abstract:

The key to obtaining a mechanistic and reliable understanding of complex public opinion formation processes is to identify the main mechanism governing interpersonal influence. Researchers have long been exploring simple yet predictive mathematical models of opinion dynamics. Although most models are based on the assumption that individuals update their opinions by averaging others' opinions, researchers might need to rethink this universally-adopted micro-foundation. The deceivingly simple weighted-averaging mechanism features a non-negligible unrealistic implication, which brings unnecessary difficulties in seeking a proper balance between model complexity and predictive power. In this paper, we fundamentally resolve this problem by proposing the weighted-median mechanism as a new micro-foundation of opinion dynamics. Such an inconspicuous change from averaging to median leads to rich consequences. The weighted-median mechanism, derived from the cognitive dissonance theory in psychology, is well supported by online experiment data. It also broadens the applicability of opinion dynamics models to multiple-choice issues with ordered discrete options, e.g., political elections. Moreover, comparative studies show that the weighted-median mechanism predicts various real-world patterns of opinion evolution while some widely-studied averaging-based models fail to, including how group structure affects the likelihood of reaching consensus and how extreme opinions are located in social networks.

Biography:

梅文俊，男，北京大学工学院力学与工程科学系助理教授、研究员。北京大学大数据分析与应用技术国家工程实验室联聘助理教授。美国加州大学圣塔芭芭拉分校博士。曾任瑞士苏黎世联邦理工学院博士后研究员。主要研究方向为社会网络动力学的建模与分析、网络博弈与群体智能。近5年在 Nature Communications、IEEE Transactions on Automatic Control、Automatica 等国际顶级期刊与会议发表论文十余篇。入选国家海外高层次人才青年项目。主持国家自然科学基金委青年基金1项，参与国家自然科学基金重点项目1项，作为骨干成员参与科技部重大项目1项。担任 SSCI 国际期刊 Journal of Mathematical Sociology 编委。