The Institute of Advanced Studies
Lowy Distinguished Guest Professors

המכון ללימודים מתקדמים
פרופסורים אורחים מיוחדים ע"ש לאוי

TEL AVIV UNIVERSITY
The Lowy International School

פרופסור איתן תדמור

המחלקה למתמטיקה
המכון למדע פיזיקלי וטכנולוגיה
אוניברסיטת מרילנד, קולג' פארק, מרילנד, ארה"ב

Professor Eitan Tadmor

Department of Mathematics
Institute for Physical Science and Technology
University of Maryland, College Park, Maryland, USA

Seminar in Applied Mathematics | סמינר במתמטיקה שימושית

EMERGENCE OF MONO-KINETIC SOLUTIONS
FOR EULER ALIGNMENT EQUATIONS

The seminar will be held on Wednesday
7 January 2026, at 12:00
Room 309, Schreiber Building
Tel Aviv University, Ramat-Aviv

הסמינר יתקיים ביום רביעי
7 בינואר 2026, בשעה 12:00
חדר 309, בניין שרייבר
אוניברסיטת תל-אביב, רמת-אביב

Light refreshments will be served before the seminar | כיבוד קל יוגש לפני הסמינר

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Department of Mathematics
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University of Maryland, College Park, Maryland, USA

EMERGENCE OF MONO-KINETIC SOLUTIONS FOR EULER ALIGNMENT EQUATIONS

January 7, at 12:00
Room 309, Schreiber Building

We are concerned with the emergent behavior of interacting agents driven by alignment. The dynamics is governed by different protocols of pairwise interaction found in synchronization, swarming, flocking, opinion dynamics, robotics, and dynamics of transformers in LLM. The hydrodynamic description leads to Euler alignment system of equations. It lacks closure, reflecting lack of detailed energy balance in collective dynamics. We discuss the role of a reversed entropy inequality in selecting mono-kinetic closure and the emergence of strong solutions, thus settling the open question of existence in dimension $D>2$.

EITAN TADMOR is a Distinguished University Professor at the University of Maryland, with appointments in Mathematics and the Institute for Physical Science and Technology. He received his Ph.D. from Tel Aviv University and has held positions at Caltech, Tel Aviv University, UCLA where he co-founded the NSF Institute for Pure and Applied Mathematics (IPAM), and was a Senior Fellow at ETH Zürich.

A leading figure in applied mathematics, Prof. Tadmor has made foundational contributions to computational mathematics, kinetic theory, and self-organized collective dynamics. He has published over 200 papers and delivered major invited lectures, including at the ICM, ICIAM, and AMS Gibbs Lecture.

His honors include the SIAM–ETH Peter Henrici Prize, the AMS–SIAM Norbert Wiener Prize, and election as Fellow of the AMS and SIAM, as well as membership in Academia Europaea and the European Academy of Science.