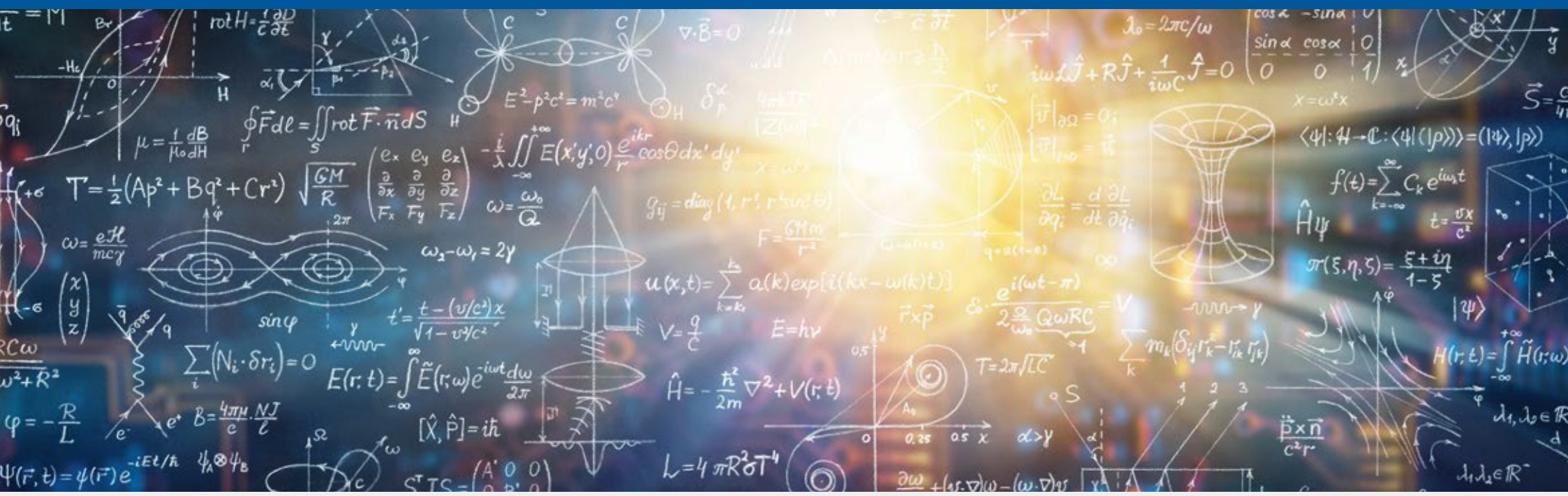
Distinguished Lectures
in Pure Mathematics

ההרצאות המיוחדות
במתמטיקה עיונית

TEL AVIV UNIVERSITY
The Lowy International School



פרופסור שמואל ויינברגר

פרופסור מחקר בכיר למתמטיקה ע"ש אנדרו מקליש
החוג למתמטיקה
אוניברסיטת שיקגו, אילינוי, ארה"ב

Professor Shmuel Weinberger

Andrew MacLeish Distinguished Service Professor of Mathematics
Department of Mathematics
University of Chicago, Illinois, USA

הרצאה במסגרת הקולוקוויום של בית הספר למדעי המתמטיקה
Lecture in the framework of the School of Mathematical Sciences' colloquium

THE GEOMETRY OF NONLINEAR FUNCTION SPACES

The colloquium will be held on Monday
10 November 2025, at 12:00
Room 006, Schreiber Building
Tel-Aviv University, Ramat-Aviv

הקולוקוויום יתקיים ביום שני
10 בנובמבר 2025, בשעה 12:00
חדר 006, בניין שרייבר
אוניברסיטת תל-אביב, רמת-אביב

הרצאה במסגרת הסמינר בגיאומטריה ודינמיקה
Lecture in the framework of the Geometry and Dynamics seminar

MORSE COMPLEXITY OF HOMOLOGY CLASSES

The seminar will be held on Wednesday
12 November 2025, at 14:00
Room 309, Schreiber Building
Tel-Aviv University, Ramat-Aviv

הסמינר יתקיים ביום רביעי
12 בנובמבר 2025, בשעה 14:00
חדר 309, בניין שרייבר
אוניברסיטת תל-אביב, רמת-אביב

Light refreshments will be served before the lectures | כיבוד קל יוגש לפני ההרצאות

The Institute of Advanced Studies
https://ias.tau.ac.il/

Distinguished Lectures
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ההרצאות המיוחדות
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THE GEOMETRY OF NONLINEAR FUNCTION SPACES

November 10, at 12:00
Room 006, Schreiber Building

Algebraic topology largely studies the (algebraic) topology of function spaces, e.g. its components (homotopy classes) and their topology. Prof. Weinberger will introduce a program and try to motivate the effort to find additional geometry on these spaces so that notions such as volume and diameter can be discussed fruitfully. (Based on ideas of Gromov, and, most recently, joint work with Block and Manin).

MORSE COMPLEXITY OF HOMOLOGY CLASSES

November 12, at 14:00
Room 309, Schreiber Building

In the 1970's Gromov (motivated by ideas of Thurston) introduced a pseudonorm on the homology of a space based on the minimum number of simplices it takes to represent the class. This concept has proved enormously useful in many investigations. In his talk, Prof. Weinberger will discuss the much more elusive concept based on minimizing the number of critical points in a Morse function for a manifold representative of the homology class. In dimension two, these are essentially the same idea, but they differ in higher dimensions. He will explain the little that we know about this measurement which relates to some classical topology (most interestingly open book decompositions, and surgery theory), representation theory and elliptic operators (for the very few nonzero estimates we know). (Joint work with Manin and Tshishiku)

SHMUEL WEINBERGER is the Andrew MacLeish Distinguished Service Professor of Mathematics and former Chair of the Department of Mathematics at the University of Chicago, Illinois, USA.

His research focuses on topology, differential geometry, and geometric group theory, with applications in other disciplines. He has delivered numerous distinguished lectures worldwide, including at Tel Aviv University, London Mathematical Society, Tulane University, and Yale University.

Prof. Weinberger has received major awards including the Sloan Foundation Fellowship (1985), Presidential Young Investigator Award (1985), and the Friedrichs Prize of the Courant Institute (1982).

He is a Fellow of the American Mathematical Society and the American Academy for the Advancement of Science.