אוניברסיטת חיפה
University of Haifa
جامعة حيفا

הפקולטה למדעי הטבע
Faculty of Natural Sciences
كلية علوم الطبيعة

החוג למתמטיקה
Department of Mathematics
قسم الرياضيات

Center for Mathematics and Scientific Computation (CMSC)
המרכז למתמטיקה ולחישוב מדעי

invites you to a
Distinguished Lecture Series
to be given by

Prof. **Shmuel Weinberger**
(University of Chicago)

On

מתכבדים להזמינך
לסדרת הרצאות מיוחדת במתמטיקה
שתינתן על-ידי

פרופ' **שמואל ויינברגר**
(אוניברסיטת שיקגו)

בנושא

The Geometry of Nonlinear Function Spaces.

Topologists have long been interested in the topology of function spaces - indeed homotopy is essentially an understanding of the connected components of function spaces. In these lectures, I would like to ask questions about the geometry of these function spaces - a topic that grows out of classical approximation theory, and has interesting applications to variational problems and quantitative geometry - and (I hope) describe some of the beautiful discoveries of the past several years.

* On Tuesday, January 2, 2024 at 14:00 PM
* ביום ג', 2.1.2024 בשעה 14:00

Entropy

The first geometric invariant we will consider is the entropy of function spaces. We will give applications to topology and also to the existence of closed geodesics on certain manifolds.

* On Wednesday, January 3, 2024 at 12:00 PM
* ביום ד', 3.1.2024 בשעה 12:00

Persistent homology

Persistent homology was a tool introduced into computational topology to study proteins and arctic snow fields. It is a useful tool for measuring some non-topologically invariant properties of functionals and can be viewed as a distillation of Morse theory. I will explain this formalism and apply it to some interesting functionals.

* On Thursday, January 4, 2024 at 12:00 PM
* ביום ה', 4.1.2024 בשעה 12:00

Diameter

Algebraic topology tells us (when it succeeds) whether two functions can be deformed into one another, i.e. can be connected by a path in a function space. We will see that many function spaces are "small worlds", i.e. any two points in the same components have only a few "degrees of separation". We will see that this has significant geometric implications.

All lectures will take place in room 614, Education Building
כל ההרצאות יתקיימו בחדר 614 בבניין לחינוך

For further information: 04-8249294 , 04-8240699 : לפרטים נוספים נא להתקשר

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