

invites you to a
Distinguished Lecture Series
to be given by

Prof. **Mikhail Kapranov**
(Kavli Inst. for Physics & Mathematics
of the Universe - University of Tokyo)



מתכבדים להזמין
לסדרת הרצאות מיוחדת במתמטיקה
שתינתן על-ידי

פרופ' **מיכאיל קפרנוב**
(IPMU, אוניברסיטת טוקיו)

on

בנושא

Perverse sheaves and their categorification

Perverse sheaves are by now a classical tool in algebraic geometry, having many applications in other areas such as representation theory. The lectures are based on joint works in progress with T. Dyckerhoff, V. Schechtman, Y. Soibelman and L. Soukhanov. They will present an approach to understanding perverse sheaves using real skeleta of complex manifolds and a program of "categorification" of the very concept of a perverse sheaf in which vector spaces are replaced by (enhanced) triangulated categories.

* On Monday May 9, 2022 at 4:00 PM,

* ביום ב', 09.05.2022 בשעה 16:00

The first lecture will give an elementary introduction to perverse sheaves and present several instances of their description in terms of data of mixed functoriality (Janus sheaves). Among natural examples of such data one finds Hochschild "bicomplexes" of Hopf algebras (involving both multiplication and comultiplication) and various induction/restriction diagrams in representation theory.

* On Tuesday, May 10, 2022 at 2:00 PM,

* ביום ג', 10.05.2022 בשעה 14:00

The second lecture will outline the program of perverse schobers (categorical lifts of perverse sheaves), a concept which is conjectural in general but can be defined directly in simple situations. I will explain the role of perverse schobers as coefficient data for Fukaya categories (which can be themselves considered as categorifications of middle (co)homology) similar to the role of ordinary sheaves as coefficient data for cohomology. I will also explain the connection with the Waldhausen S -construction known from algebraic K -theory.

* On Wednesday, May 11, 2022 at 11:00 AM

* ביום ד', 11.05.2022 בשעה 11:00

The third lecture will discuss the analog of the (geometric) Fourier transform for perverse schobers on the complex line and its relation to the Algebra of the Infrared of Gaiotto-Moore-Witten. In this way schobers can be seen to encode some of the features of 2d quantum field theories in the infrared limit.

All lectures will take place

כל ההרצאות יינתנו

in room 570 of the Science & Education Building

בחדר 570, בניין חינוך ומדעים

For further information call

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לפרטים נוספים נא להתקשר

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