

---

THE WEIZMANN INSTITUTE OF SCIENCE  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE  
Algebraic Geometry and Representation Theory Seminar

Room A ,Feinberg Graduate School Building  
on Wednesday, Jan 15, 2020at 11:15

**NOTE UNUSUAL PLACE: Feinberg Graduate School, ROOM A**  
Pavel Etingof MIT

The Frobenius functor for symmetric tensor categories in positive characteristic.

Abstract:

An important role in modular representation theory is played by the Frobenius twist functor, twisting the  $k$ -linear structure of a representation by the Frobenius automorphism  $F(a)=a^p$  of the (algebraically closed) ground field  $k$  of characteristic  $p$ . I will define an analog of this functor for any symmetric tensor category of characteristic  $p$ . One of the main new features is that unlike the classical Frobenius twist functor, this functor need not be left or right exact. I will give examples when it is not and describe a replacement of the exactness property. I will also describe applications of this notion to formulating and proving analogs of Deligne's theorem in positive characteristic. This is joint work with V. Ostrik.