TOPOLOGY SEMINAR

$RO(C_2)$-graded coefficients of C_2-Eilenberg-MacLane spectra

By

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Abstract: In non-equivariant topology the ordinary homology of a point is described by the dimension axiom and is quite simple - namely, it is concentrated in degree zero. The situation in G-equivariant topology is different. This is due to the fact that Bredon homology - the equivariant counterpart of the ordinary homology - is naturally graded over $RO(G)$, the ring of G-representations. Whereas the equivariant dimension axiom describes the part of the Bredon homology of a point which is graded over trivial representations, it does not put any requirements on the rest of the grading - in which the homology may be quite complicated.
The $RO(G)$-graded Bredon homology theories are represented by G-Eilenberg-MacLane spectra, and thus the Bredon homology of a point is the same thing as coefficients of these spectra. During the talk I will present the method of computing the $RO(C_2)$-graded coefficients of C_2-Eilenberg-MacLane spectra based on the Tate square. As demonstrated by Greenlees, the Tate square gives an algorithmic approach to computing the coefficients of equivariant spectra. In the talk we will discuss how to use this method to obtain the $RO(C_2)$-graded coefficients of a C_2-Eilenberg-MacLane spectrum as a $RO(C_2)$-graded abelian group. We will also present the multiplicative structure of the C_2-Eilenberg-MacLane spectrum associated to the Burnside Mackey functor. This allows us to further describe the $RO(C_2)$-graded coefficients of any C_2-Eilenberg-MacLane spectrum as a module over the coefficients of the C_2-Eilenberg-MacLane spectrum of the Burnside Mackey functor. Finally, we will discuss the $RO(C_2)$-graded ring structure of coefficients of spectra associated to ring Mackey functors.

Date: 4 October, 2021
Time: 13:30 UTC+3
Place: Zoom

To request the event link, please send a message to cihan.okay@bilkent.edu.tr