



DEPARTMENT OF MATHEMATICS
Spring 2024 MATH Colloquium Series

$$\Omega = \{1, 2, 3, 4, 5, 6, 7\}$$

$$B = \{l_1, l_2, l_3, l_4, l_5, l_6, l_7\}$$

$$l_1 = \{1, 2, 3\}, l_2 = \{3, 4, 5\}, l_3 = \{5, 6, 1\}, l_4 = \{2, 4, 6\},$$

$$l_5 = \{1, 7, 4\}, l_6 = \{2, 7, 5\}, l_7 = \{3, 7, 6\}$$

Module Categories: Why We Care, and How to Find Them

Caleb Hill

Ph.D. Candidate

Dept. of Mathematics & Statistics
University of New Hampshire

Many abstract algebraic objects have manifestations as symmetries of other concrete objects. Fields have vector spaces, rings have modules, and groups have representations. There is lots of theory devoted to the study of such manifestations. In this talk we will explore manifestations of a more exotic algebraic object: tensor categories. We call these manifestations module categories. We will discuss motivations for studying module categories, and one method of constructing them.

Mar. 21, 2024
THURSDAY

4:00 PM
BSS#166

$$e = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 1 & 2 & 3 & 4 & 5 \end{pmatrix} \quad a_1 = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 2 & 3 & 4 & 5 & 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 3 & 4 & 5 & 1 & 2 \end{pmatrix} \quad a_3 = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 4 & 5 & 1 & 2 & 3 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 5 & 1 & 2 & 3 & 4 \end{pmatrix} \quad a_5 = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 1 & 5 & 4 & 3 & 2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 3 & 2 & 1 & 5 & 4 \end{pmatrix} \quad a_7 = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 5 & 4 & 3 & 2 & 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 2 & 1 & 5 & 4 & 3 \end{pmatrix} \quad a_9 = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 4 & 3 & 2 & 1 & 5 \end{pmatrix}$$

FOR MORE INFO GO TO [HTTPS://MATH.HUMBOLDT.EDU/GET-INVOLVED/MATHEMATICS-COLLOQUIUM](https://math.humboldt.edu/get-involved/mathematics-colloquium)

WE CORDIALLY INVITE YOU TO THE PRE-COLLOQUIUM TEA IN BSS#312
AT 3:30 PM