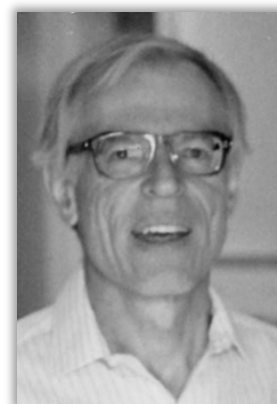


*The Department of Mathematics at the
University of California, Riverside
is proud to present*

*The Fifth Lecture of the
Richard E. Block
Distinguished Lecture
in Mathematics Series*



Given by



M. Susan Montgomery

*Professor & Director of Graduate Studies,
University of Southern California*

*Orthogonal representations: from groups to
Hopf algebras to tensor categories*

Let G be a finite group and V a finite dimensional representation of G over the complex numbers. According to a wonderful theorem of Frobenius and Schur from 1906, there are only three possibilities for V :

1. V has a non-degenerate G -invariant symmetric bilinear form (the orthogonal case)
2. V has a non-degenerate G -invariant skew-symmetric bilinear form (the symplectic case);
3. V does not admit any non-degenerate G -invariant bilinear form.

They give a formula, called the indicator, with possible values 1, -1, or 0, depending on the case. The work of Frobenius and Schur was extended to representations of finite dimensional Hopf algebras, starting about 20 years ago, and then to various tensor categories. It turns out to be very useful in representation theory since it is a category invariant of the category of representations.

We will survey some of these results and their applications.

Wednesday, May 25th, 2022

4:00 p.m.

in Skye 284