1023-47-29   **Palle E. T. Jorgensen*** (`jorgen@math.uiowa.edu`), Dept of Math, MLH, University of Iowa, Iowa City, IA 52242. *Broken symmetry.*

It has been suggested that George Mackey's middle name might have been "Symmetry."

Since the session, is likely to cover that ground, I am departing from the beaten path, but not too much: Hence quasi-symmetry, etc.

The talk will summarize five instances that can be grouped under this title. Despite an apparent vast divergence of contexts for the five, I will argue that the examples indeed fit into an image of broken symmetry.

(1) Finite vs infinite degrees of freedom in physics: E.g., the departure from the conclusion of the Stone-von Neumann uniqueness theorem when passing from a finite to an infinite number of degrees of freedom. (2) Phase transition in the context of $\beta - KMS$ states, i.e., the occurrence of multiplicity of these states for certain fixed values of β. (3) Quasicrystals, diffraction, and quasiperiodic tilings. (4) Fractal iteration limits and irregular spectrum: Recursive limits and a duality between fractal scales in the small, and scales in the large. (5) The multiresolution wavelets WL : This will be presented in the context of a certain infinite-dimensional unitary group, also called a loop group LG. We identify a constructive feature of this in the form of a Mackey type duality: WL - LG. (Received July 01, 2006)