Dynamics of open quantum systems

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Reliable theoretical modeling of the dynamics of open quantum systems, such as an externally driven quantum system, is essential for the realization of quantum devices, quantum simulators, and quantum computers. This talk discusses the dynamics of open quantum systems from several different viewpoints using master equations of the Lindblad form. Examples include the treatment of the p-wave contact of single-component Fermi gases, dissipation engineering in few-level systems, and the development of a dynamic invariant- or Lie-algebra-based master equation framework in which higher-order terms can be accounted for systematically.

Bio info:

Doerte Blume holds a Georg Lynn Cross Research Professorship at The University of Oklahoma (OU). She received her Ph.D. in physics in 1998 from the Georg-August University, Goettingen, Germany. After postdoctoral work at JILA/University of Colorado in Boulder, she took up a faculty position in the Department of Physics and Astronomy at Washington State University (WSU) in the beautiful inland Northwest. In the summer of 2017, Doerte relocated to OU. Doerte is a Fellow of the American Physical Society, and a recipient of a Bush Lectureship at OU and a Meyer Distinguished Professorship at WSU. Her research accomplishments at WSU were also recognized through the College of Arts and Sciences Mid-Career Achievement in Scholarship/Creative Activities Award and the College of Sciences Young Faculty Performance Award.