Symmetries of Differential and Difference Equations, and Their Applications

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摘要：

Many techniques for solving ordinary differential equations, such as separable and homogeneous equations, are specific instances of a general integration method based on the invariance of differential equations under continuous symmetry groups. In this series of lectures, we will primarily focus on the theory and applications of continuous symmetries to differential and finite difference equations, with special emphasis on variational equations. Specifically, we will explore symmetry-preserving (or invariant) variational integration using moving frames.

个人简介：

Dr. Linyu Peng is an Associate Professor in the Department of Mechanical Engineering and the Center for Applied Mechanics and Computational Mechanics at Keio University, Japan. He earned his Ph.D. from the University of Surrey in the U.K. in 2013. From 2013 to 2020, he held various positions at Waseda University in Japan, including junior researcher and assistant professor. He was also a junior member and an invited visitor of the Isaac Newton Institute for Mathematical Sciences at Cambridge University, U.K. His research primary focuses on the geometric and algebraic structures of differential and difference equations, as well as applications of information geometry.