

2019 年度研究活動報告書/Research Report (Year 2019)

Linyu Peng

Research summary:

- 1) The classification of statistical manifolds with constant curvatures, using the symmetry method.
- 2) Invariant analysis of finite difference equations.

Published papers:

1. L. Peng and Z. Zhang, Statistical Einstein manifolds of exponential families with group-invariant potential functions, *Journal of Mathematical Analysis and Applications* **479**, 2104-2118, 2019.
2. L. Peng, Symmetries and reductions of integrable nonlocal partial differential equations, *Symmetry* **11**, 11pp, 2019.
3. J.A. Wright and L. Peng, An automatic dynamic balancer in a rotating mechanism with time-varying angular velocity, *Results in Applied Mathematics* **2**, 13pp, 2019.
4. E.L. Mansfield, A. Rojo-Echeburúa, P.E. Hydon and L. Peng, Moving frames and Noether's finite difference conservation laws I, *Transactions of Mathematics and Its Applications* **3**, 47pp, 2019.

Conference/Workshop talks:

1. L. Peng, "Variational systems on the variational bicomplex", Programme 'Geometry, compatibility and structure preservation in computational differential equations', Isaac Newton Institute for Mathematical Sciences, Cambridge University, UK, September 18, 2019
2. L. Peng, "A general prolongation formulation for symmetries of differential-difference equations", China-Japan Joint Workshop on Integrable Systems 2019, Shonan Village Center, Kanagawa, Japan, August 18-23, 2019