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Yiming Long received his Master degree from Nankai University in 1981 and Ph. D. from University of Wisconsin-Madison in 1987. After the post-doc period in FIM of ETH-Zürich, he joined the Nankai Institute of Mathematics (now Chern Institute of Mathematics) of Nankai University in late 1988 and is a professor since 1990. He is a Changjiang professor at Nankai University since 2000. Long's interest is in dynamical systems, variational methods, symplectic geometry and celestial mechanics, especially on the iteration theory of Maslov-type indices, periodic solutions of Hamiltonian systems, close geodesics, stability of periodic orbits of N-body problems. The awards obtained by him include the S.S.Chern Prize of Chinese Mathematical Society (1997), TWAS Award in Mathematics by Academy of Sciences for the Developing World (TWAS, 2002), Chinses National Natural Science Prize (2004), the Prize for Scientific and Technological Progress by Ho Leung Ho Lee Foundation (2013). He was an invited speaker of the International Congress of Mathematicians (2002). He is a member of Chinese Academy of Sciences, a fellow of TWAS, and an inaugural fellow of American Mathematical Society.

Title: Closed geodesics on compact Finsler manifolds.

Abstract: The closed geodesic problem is a classical topic in dynamical systems, differential geometry and variational analysis, which can be chased back at least to H. Poincaré. A famous conjecture claims the existence of infinitely many distinct closed geodesics on every compact Riemaniann manifold. But so far it has been only proved for the 2-dimentional case. On the other hand, Riemannian metrics are quadratic reversible Finsler metrics, and the existence of at least one closed geodesic on every compact Finsler manifold is well-known because of the famous work of L. Lyusternik and A. Fet in 1951. In 1973 A. Katok constructed a family of remarkable Finsler metrics on every d-dimensional sphere Sd which possesses precisely 2[(d+1)/2] distinct closed geodesics. In 2004, V. Bangert and the author proved the existence of at least 2 distinct closed geodesics for every Finsler metric on S2, and this lower bound multiplicity estimate on S2 is sharp by Katok's example. Since this work, many new results on the multiplicity and their stabilities of closed geodesics have been established. In this lecture, I shall give a survey on the study of closed geodesics on compact Finsler manifolds, including a brief history and results obtained in the last 10 years. I shall also introduce some recent results we obtained for the multiplicity and stability of closed geodesics on compact Finsler manifolds, sketch some ideas of their proofs, and then propose some further open problems in this field.