Harmonic Vector Fields On Unit Tangent Sphere Bundles

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The relationship between the geometric properties of a Riemannian manifold and those of its unit tangent sphere bundle has been studied for decades by many authors and is still an active research area. We study the unit tangent sphere bundle whose characteristic vector field is a harmonic vector field. In this talk, the influence of the geometric properties of the unit tangent sphere bundle on the base manifold will be discussed. A characterization and several examples will be given for Einstein spaces whose unit tangent sphere bundles have the harmonic characteristic vector fields with the standard contact metric structures. Further, the recent results for the Riemannian manifold whose unit tangent sphere has the harmonic characteristic vector field with the standard contact metric structure will be mentioned.