1143-60-343 **Stilian A Stoev*** (sstoev@umich.edu), Ann Arbor, MI 48109, **Jinqi Shen** (jqshen@umich.edu), Ann Arbor, MI 48109, and **Tailen Hsing** (thsing@umich.edu), Ann Arbor, MI 48109. *Intrinsic Random Tangent Fields.* Preliminary report.

Consider a random field $X = \{X(t),\ t \in \mathbb{R}^d\}$ with continuous paths. The process X is said to have a tangent field $Y_z = \{Y_z(t), \mathbb{R}^d\}$ at $z \in \mathbb{R}^d$, if

$$\{X(ht+z) - X(z))/a(h),\ t \in \mathbb{R}^d\} \Rightarrow \{Y_z(t),\ t \in \mathbb{R}^d\}, \quad \text{as } h \to 0,$$

for some $a(h) \downarrow 0$, where $\Rightarrow$ denotes convergence in distribution in the space of continuous functions endowed with the local uniform topology.

In a seminal paper Falconer (2002) characterized the structure of the tangent process of a random field. Specifically, he showed that the tangent filed Y_z must be self-similar and with stationary increments, for almost all $z \in \mathbb{R}^d$ (for which it is defined). The stationarity of increments property is most delicate to prove and most surprising.

We discuss an alternative proof of Falconer's characterization, based on Lusin's and Egorov's theorems. Our approach applies to the characterization of tangent objects corresponding to general k-th order local increments of the field X. This leads us to an extension of Falconer's characterization to the case of tangents of intrinsic random functions.

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