



Universität Hamburg

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Fakultät Mathematik, Informatik
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Fachbereich Mathematik
Bundesstr. 55 (Geomatikum)
20146 Hamburg



Kolloquium über Mathematische Statistik und Stochastische Prozesse

Freitag, den 27.04.2012, 16.15 Uhr, Hörsaal 5

DR. STEPHAN HUCKEMANN (Georg-August-Universität Göttingen) ¹

"On Asymptotics of Means of Non-Euclidean Data"

Zusammenfassung/Abstract

In many applications, data occur on non-Euclidean spaces. Simple examples are filament directions on the circle and aligned shapes on the sphere. More advanced ones are shapes of geometrical objects and phylogenetic trees which lead to so called stratified spaces. Since all of these spaces are in particular metric spaces, means and expected elements with respect to a squared distance can be defined. How to choose from a multitude of canonical distances, however, is often not clear. While linking the central limit theorem for large sample statistics to specific distances we find desirable properties, such as "manifold stability" keeping expected elements away from singularities on non-manifold G-spaces, less desirable properties, such that the distributional behavior at the cut locus may govern the rate of convergence on the circle, and undesirable properties such as "stickiness" forcing sample means to hit singularities in finite time on non-manifold CAT(0) spaces.

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