

Uncertainty Theory with Applications

Baoding Liu

Uncertainty Theory Laboratory, Department of Mathematical Sciences,
Tsinghua University, Beijing 100084, China
Email: liu@tsinghua.edu.cn

Abstract

The real life decisions are usually made in the state of uncertainty. This fact provides a motivation to study the behavior of uncertain phenomena. In order to deal with subjective uncertainty, Liu (2007) founded an uncertainty theory that is a branch of mathematics based on normality, monotonicity, self-duality, countable subadditivity, and product measure axioms. After that, uncertainty theory was widely applied in science and engineering.

This talk will introduce the basic concepts of uncertainty theory and discuss the potential applications in uncertain programming, uncertain process, uncertain calculus, uncertain differential equation, uncertain logic and uncertain inference. This presentation is based on the book Liu (2007).

References

Liu, B. *Uncertainty Theory*, 2nd ed., Springer-Verlag, Berlin, 2007.