Iteration, Loewner Theory, and Markov Processes

Pavel Gumenyuk

Polytechnical University of Milan, Italy

Abstract

In this talk we will review classical and new applications of Complex Analysis to Markov stochastic processes in which the transition probabilities turn out to be encoded by holomorphic self-maps and the Chapman-Kolmogorov relation can be written in terms of their compositions. In particular, there will be presented recent results for time-inhomogeneous continuous-state branching processes obtained in collaboration with Takahiro Hasebe (Hokkaido University, Sapporo, Japan) and José-Luis Pérez (Centro de Investigación en Matemáticas, Guanajuato, Mexico).