

**On the Chaotic Representation Property of Compensated-Covariation Stable Families of Martingales**

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Time **Thursday, May 26, 2016 at 16:00**

Place **Campus Kirchberg, room tba**

We study the chaotic representation property for certain families  $\mathcal{X}$  of square integrable martingales on a finite time interval  $[0, T]$ . For this purpose, we introduce the notion of compensated-covariation stability of such families. The chaotic representation property will be defined using iterated integrals with respect to a given family  $\mathcal{X}$  of square integrable martingales having deterministic mutual predictable covariation. The main result is: If  $\mathcal{X}$  is a compensated-covariation stable family of square integrable martingales such that  $\langle X, Y \rangle$  is deterministic for all  $X, Y \in \mathcal{X}$  and, furthermore, the system of monomials generated by  $\mathcal{X}$  is total in  $L^2(\Omega, \mathcal{F}_T, \mathbb{P})$ , then  $\mathcal{X}$  possesses the chaotic representation property. We shall then give concrete examples in the case of Lévy processes. This talk is based on a joint paper with H.-J. Engelbert.