Boundedness of some Multilinear Singular Integrals via Dyadic Martingales

(Talk)
Vjekoslav Kovač
University of Zagreb
vjekovac@math.hr

(joint work with Christoph Thiele, UCLA)

Demeter and Thiele posed a set of questions related to boundedness of several multilinear singular integral operators. We present some positive results obtained by probabilistic techniques. The core of our method consists of the following:

- Burkholder’s connection between martingales and real-variable operators.
- The concept of the Bellman function, borrowed from control theory and developed by Nazarov, Treil, and Volberg.
- Time-frequency decomposition of Carleson and Fefferman, later adapted by Lacey and Thiele.

MSC2010: 42B20.

Keywords: singular integral, paraproduct, bilinear multiplier, martingale, Bellman function, time-frequency analysis.

Section: 9.