
ANA ČOLOVIĆ, University of Missouri
Composition of Paraproducts

On the real line, we can decompose a product of two functions in $L^2(\mathbb{R})$ in the following way:

$$bf = \Pi_b(f) + \Pi_b^*(f) + \Pi_f(b),$$

where Π_b is the dyadic paraproduct. In 2013, Pott, Reguera, Sawyer and Wick classified the boundedness of compositions of paraproduct operators $\Pi_b\Pi_d^*$, $\Pi_b^*\Pi_d$, for different functions b and d , along with compositions of paraproducts with the dyadic martingales, in terms of joint conditions on the symbols b and d . We classify the remaining $\Pi_b\Pi_d$ operator.