TWO-WEIGHT COMMUTATOR ESTIMATES: GENERAL MULTI-PARAMETER FRAMEWORK

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Abstract: We provide an explicit technical framework for proving very general two-weight commutator estimates in arbitrary parameters. The aim is to both clarify existing literature, which often explicitly focuses on two parameters only, and to extend very recent results to the full generality of arbitrary parameters. More specifically, we study two-weight commutator estimates – Bloom type estimates – in the multi-parameter setting involving weighted product BMO and little BMO spaces, and their combinations.

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Key words: iterated commutators, multi-parameter singular integrals, Bloom’s inequality, product BMO, weighted BMO, little BMO.