Under the assumption that $\mu$ is a non-negative Radon measure on $\mathbb{R}^d$ which only satisfies some growth condition, the authors proved the multilinear Calderón–Zygmund operators are bounded from $\mathcal{M}_{q_1}^{p_1}(k, \mu) \times \cdots \times \mathcal{M}_{q_m}^{p_m}(k, \mu)$ into $\mathcal{M}_{q}^{p}(k, \mu)$ for some fixed $q_1, \ldots, q_m \in (1, \infty)$ and $1/q = 1/q_1 + \cdots + 1/q_m$. Furthermore, the authors established the same bounded estimates for the commutators generated by multilinear Calderón–Zygmund operators and RBMO($\mu$) functions. Some of the results are also new even when the measure $\mu$ is the $d$-dimensional Lebesgue measure.

Address:
Liang Li
Department of Mathematics
Institute of Applied Mathematics
YiLi Normal University
835000, YiNing
P.R. China

Address:
Bolin Ma
College of Science and Information Engineering
JiaXing University
314001, JiaXing
P.R. China

Address:
Jiang Zhou
College of Mathematics and System Sciences
Xinjiang University
830046, Urumqi
P.R. China