Paraproducts are arguably the simplest singular operators. But the standard Calderón–Zygmund theory fails to apply in the product setting. On the other hand, in PDE the need for such multi-parameter SIO appears very naturally when one needs a Leibniz rule for non-homogeneous derivatives, say on product of two functions of two variables. Obviously it is an absolutely fundamental question. Another need for multi-parameter weighted paraproducts appear from complex analysis in polydisc as in Chang–Fefferman series of papers. While embedding Dirichlet space on polydisc into $L^2$ on torus with respect to a given measure, we stumble upon a counterintuitive property of planar measures that seems to be contradictory to Carleson quilts example in Chang-Fefferman theory. Of course it is not, and our property gives necessary and sufficient condition for boundedness of weighted bi-parameter paraproducts, thus solving the problem of embedding of Dirichlet space of analytic functions in bidisc.