1039-46-20 **M. M. Rao*** (`rao@math.ucr.edu`), Dept. of Mathematics, Univ. of Calif., Riverside, CA 92521.
Random Measure Algebras in Hilbert Space.

Let Z be a countably additive measure on the delta-ring of bounded Borel sets on the line into a Hilbert space, realized as $L_0^2(P)$, the Lebesgue space of square integrable random variables on a probability space whose integrals vanish (or centered variables). Then Z, called a random measure, induces a bimeasure on the plane which may not determine a measure, since it need not have a finite (Vitali) variation. Using the weaker concept of integration due to M. Morse and W. Transue of 1950s, one can introduce a convolution operation and consider a bimeasure algebra in this context. This leads to a generalized convolution for random measures Z via the Kolmogorov existence theorem. Some properties and (new) problems arising in this analysis together with its possible extension to the multilinear case will be indicated. These considerations extend to LCA groups and beyond.

[Classification: Primary 46, and Secondary: 60.] (Received February 12, 2008)