1086-03-2568 **George M. Bergman*** (gbergman@math.berkeley.edu), Department of Mathematics, University of California, Berkeley, CA 94720-3840. *Families of ultrafilters, and homomorphisms on infinite direct product algebras.*

In the preprint of which we will give some highlights, criteria are obtained for a filter $\mathcal{F}$ of subsets of a set I to be an intersection of finitely many ultrafilters, respectively finitely many κ-complete ultrafilters for a given uncountable cardinal κ. Using these criteria, general results are deduced concerning homomorphisms on infinite direct product groups, yielding short proofs of some results in the literature: the Łoś-Eda theorem (on homomorphisms from a not-necessarily-countable direct product of modules to a slender module), and some results of N. Nahlus and the author on homomorphisms on direct products of not-necessarily-associative k-algebras. The same tools allow some related results to be strengthened, and yield an analog to one of these with nonabelian groups in place of k-algebras.

We briefly examine to what other structures the one might apply the methods that work, as noted above, for k-algebras on the one hand and for nonabelian groups on the other.

In a final section, the Erdős-Kaplansky Theorem on dimensions of vector spaces D^I (D a division ring) is extended to reduced products $D^I/\mathcal{F}$.

For the preprint, see http://math.berkeley.edu/~gbergman/papers/cap_ultra.pdf (Received September 25, 2012)