



istanbul matematiksel bilimler merkezi
istanbul center for mathematical sciences

WORKSHOP IN BANACH ALGEBRAS

SECOND DUALS OF BANACH ALGEBRAS

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Abstract

Let A be a Banach algebra. The dual space to A is A' and the second dual space is A'' . It was shown by Arens in 1951 that there are two natural products, now called \square and \diamond , on A'' such that (A'', \square) and (A'', \diamond) are Banach algebras containing A as a closed subalgebra. These products are studied in terms of a certain topological centre $\mathfrak{Z}(A'')$. The algebra A may satisfy two very different conditions: A is *Arens regular* if $\mathfrak{Z}(A'') = A''$ and *strongly Arens irregular* or SAI if, at the other extreme, $\mathfrak{Z}(A'') = A$. These concepts will be defined, and their basic properties will be established.

It is central that the two most important classes of Banach algebras exhibit these very different features. First, all C^* -algebras A are Arens regular and (A'', \square) is also a C^* -algebra. We shall discuss this in the first lecture, concentrating on the case where A is a commutative C^* -algebra and A'' consists of all continuous functions on a certain hyper-Stonean space, whose properties we shall explore. Some of these results go back to Dixmier around 1951, but there are still open problems.

Date: Tuesday, 8 September 2009

Time: 10:30

Place: IMBM Seminar Room, Boğaziçi University

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