

MATHEMATICS COLLOQUIUM

Note on the Convergence of Fourier series and Carleson Theorem

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Abstract: We define the space $B(\rho)$ on the boundary of the unit disc which is identified with the space of analytic functions F in the complex disc satisfying,

$$\int_0^1 \int_{-\pi}^{\pi} |f'(re^{i\theta})| \frac{\rho(1-r)}{1-r} d\theta dr < \infty,$$

where ρ is certain weight.

Theorem: The maximal operator

$$Tf(x) = \sup_{n \geq 0} |S_n(f, x)|$$

maps boundedly $B(\rho)$ into the weighted Lorentz Space $L(\phi)$ for some weight ϕ .

As a consequence we have the following:

Corollary: If $f \in B(\rho)$ then the Fourier series of f converges to f almost everywhere.

Note: A review about some facts on convergence of Fourier series and Carlesons theorem will be given

Date: Thursday, **May 1, 2008**
Time: 4:00 pm – 5:00 pm
Place: J. Wiener Lecture Hall, MAGC 1.302

Refreshments will be served at 3:55pm.

For further information or for special accommodations, contact Dr. Karen Yagdjian at 381-2145, via email at yagdjian@utpa.edu, or visit www.math.panam.edu/colloquia.html