Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-47-1148 **Gajath K Gunatillake*** (gajathg@math.purdue.edu), Purdue University 150 N. University Street, West Lafayette, IN 47907. *Spectrum of a Compact Weighted Composition Operator.* Preliminary report.

For ψ analytic on the unit disk and φ an analytic map of the unit disk into itself, the weighted composition operator $C_{\psi,\varphi}$ is the operator on the Hardy space H^2 given by

$$(C_{\psi,\varphi}f)(z) = \psi(z)f(\varphi(z))$$

When ψ is in H^∞, the weighted composition operator is bounded for any analytic map φ of the disk into itself, but for some ψ and φ, the operator $C_{\psi,\varphi}$ is bounded even though ψ is unbounded in the disk.

In this talk, we describe the spectrum of this operator when it is compact. Since $C_{\psi,\varphi}(1) = \psi$, if $C_{\psi,\varphi}$ is bounded on H^2, the function ψ belongs to H^2 and can be extended to the unit circle. We will compute the spectrum in the case that ψ is bounded away from zero on the unit circle, that is,
$\inf\{|\psi(w)| : |w| = 1\} > 0$. (Received October 04, 2004)