1065-47-75 **Alberto A. Condori*** (acondori@fgcu.edu), Department of Chemistry and Mathematics, 10501 FGCU Blvd. S., Fort Myers, FL 33965-656. *An index formula in connection with meromorphic approximation.* Preliminary report.

We show that for the class of bounded $n \times n$ *admissible* matrix-valued functions $\Phi$ (e.g. any continuous matrix-valued function) on the unit circle with superoptimal meromorphic approximant $Q$ having at most $k$ poles in $\mathbb{D}$ (i.e. the McMillan degree of $Q$ in $\mathbb{D}$ is at most $k$) the Toeplitz operator $T_{\Phi-Q}$ is Fredholm and has index

$$\mathtt{ind}\,(T_{\Phi-Q}) = \dim\ker T_{\Phi-Q} = 2k + \dim\mathcal{E},$$

where $\mathcal{E} = \{\xi \in \ker H_Q : \|H_\Phi\xi\|_2 = \|(\Phi - Q)\xi\|_2\}$ and $H_{\Phi-Q}$ denotes the Hankel operator on the Hardy space $H^2(\mathbb{C}^n)$ with symbol $\Phi - Q$. (Received August 30, 2010)