

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Distinguishing cancerous from non-cancerous cells through analysis of electrical noise¹ DOUGLAS LOVELADY, HIEP Q. LE, ANASTASIA N. MAGGI, TYSON RICHMOND, CHUN-MIN LO, DAVID RABSON, University of South Florida — For more than a decade, electric cell-substrate impedance sensing (ECIS) has been used to monitor cell behavior in tissue culture and has proven to be very sensitive to cell morphological changes and cell motility [1]. We have taken ECIS measurements on several cultures of human ovarian cancer (SKOV) cells and on human ovarian surface epithelial (HOSE) cells. Our goal is to develop a numerical technique that can distinguish these cells. From the noise of the impedance measurements we characterize the cells using the power spectrum, Hurst exponent, first zero crossing, and first $1/e$ crossing of the autocorrelation function. We then performed a principal-component analysis. Our results show that there is some separation of the two cell types in the multidimensional PCA space. Most of the maximized variance is from the contribution of the autocorrelation function. We present these results and show that this technique can be used to distinguish between the two cell types. [1] Lo, C.-M., Keese, C.R. and Giaever, I., Monitoring motion of confluent cells in tissue culture, *Exp. Cell Res.* 204:102-109 (1993).

¹This work was supported in part by the Florida Space Research Institute through grant number 1253102100.

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Date submitted: 29 Nov 2006

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