1154-92-1315 **Andre Khalil*** (andre.khalil@maine.edu), Chemical and Biomedical Engineering, 5737 Jenness Hall, Orono, ME 04469-5737. *Wavelet based multifractal analysis of loss of tissue homeostasis in mammographic breast tissue.*

When compared to normal tissue environment, the tissue in the microenvironment of tumors is disrupted, as quantified via a wavelet-based multifractal method. The density fluctuations in healthy mammographic breast tissue, characterized by their surface roughness by the Hurst exponent, H, are either anti-persistent ($H < 1/2$) for fatty tissue or long-range correlated ($H > 1/2$) for dense tissue. However, tissue regions with $H \approx 1/2$ are found predominantly in tumorous breasts. The underlying physical processes associated with a $H \approx 1/2$ signature are randomness, lack of spatial correlation, and free diffusion, which we associate with loss of homeostasis in the breast tumor microenvironment. (Received September 14, 2019)