Black Hole Spectroscopy, Final System Parameters LIONEL LONDON, JAMES HEALY, The Georgia Institute of Technology, SAM FINN, Penn State, DEIRDRE SHOEMAKER, The Georgia Institute of Technology — Given a gravitational wave signal containing merger and ring-down, we present a method for estimating the start of ring-down, and extracting quasi-normal mode information from the signal. The application of this method to numerical relativity waveforms may reveal information about the source generating the gravitational waves beyond the final mass and spin of the black hole. We investigate the potential for recovering the system’s initial and final parameters from these modes.