Gas-phase complexes of scandium with pyrene (C_{16}H_{20}) and naphthalene (C_{18}H_{16}) are produced by using laser ablation and a polycyclic aromatic hydrocarbon (PAH) oven in a pulsed molecular beam source. The resulting Sc-PAH complexes are characterized with pulsed field ionization-zero electron kinetic energy (PFI-ZEKE) photoelectron spectroscopy. The PFI-ZEKE spectrum of Sc-Pyrene exhibits vibrational progressions of 361 and 154 cm\(^{-1}\) and a vibrational spacing of 144 cm\(^{-1}\), with the band origin at 40937 cm\(^{-1}\). Through comparison with \textit{ab initio} and Franck-Condon factor calculations, it is determined that this spectral profile arises from a Sc-pyrene complex in which the scandium atom is bound to the “outer” ring in an \(\eta^5\) configuration. The 361 cm\(^{-1}\) progression is assigned to the Sc\(^{3+}\)-ring stretch and 154 and 144 cm\(^{-1}\) features are assigned to pyrene “flying” modes in the cation and neutral, respectively. For Sc-naphthalene, the spectrum shows four vibrational intervals of 389, 347, 298 and 112 cm\(^{-1}\), with the adiabatic ionization energy of 41192 cm\(^{-1}\). A preliminary analysis indicated the Sc atom is in an \(\eta^5\) bonding mode in this complex. However, a detailed analysis is still in progress.