(f)Quasar Luminosity Functions in Host Halo Mass bins All SMBHs  $13 < \log M_{
m peak} < 14$ dex\_  $11 < \log M_{
m peak} < 12$  —  $14 < \log M_{
m peak} < 15$  $\sum_{\epsilon=0}^{10^{-3}} 10^{-5}$  $12 < \log M_{
m peak} < 13$ Number Density [] z = 3.0 $10^{43}$  $10^{45}$  $10^{48}$  $10^{44}$  $10^{46}$  $10^{47}$ Bolometric Luminosity [ergs s<sup>-1</sup>]