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ARPES and XRD study of $ReSe_2$ monolayer BYOUNG KI CHOI, Univ of Seoul, Korea, SOREN ULSTRUP, ALS, LBNL, USA, SEO HYOUNG CHANG, Bukyoung Natl Univ, Korea, LUCA MORESCHINI, CHRIS JOZWIAK, AARON BOSTWICK, ELI ROTENBERG, ALS, LBNL, USA, YOUNG JUN CHANG, Univ of Seoul, Korea — ReSe2, among many transition metal dichalcogenides materials, has the largest interlayer distance and show direct band gap with strong photoluminescence signal even for thick layers. Its electronic structures should be useful for understanding the unique optical properties. Although many theoretical calculations, experimental evidences are still limited for identifying the band structure of their ultrathin layers. Here, we grew ReSe2 monolayers on graphene/SiC substrates by using MBE. We could perform ARPES and grazing XRD measurements on the ReSe2 films. We could identify that the $ReSe_2$ monolayer has top of valence band near the Γ point. We discuss band structure hybridization between ReSe2 and graphene bands. From the XRD analysis, we precisely measured interlayer distance of ReSe2 monolayer and bilayer. [NRF-2014R1A1A1002868, NRF-2016K1A3A7A09005337]

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