Supporting information for

# Improved light emission of $MoS_2$ monolayer by constructing AlN/$MoS_2$ core-shell nanowires

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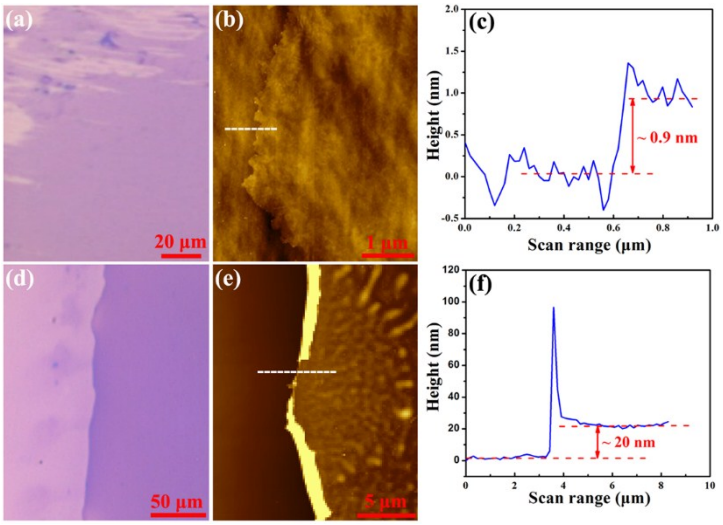


Fig. S1 The optical image, AFM, and height profile of the $MoS_2$ film obtained at different Mo sputtering time: (a)-(c) 15 s, (d)-(f) 45 s.

Table S1 Summary of $A_{1g}$, $E^1_{2g}$, and Δ of CVD-grown $MoS_2$ monolayer

| Substrate | $A_{1g}$ ($cm^{-1}$) | $E^1_{2g}$ ($cm^{-1}$) | Δ ($cm^{-1}$) | Reference |
|---|---|---|---|---|
| $SiO_2$/Si | 405.1 | 384.6 | 20.5 | 1 |
| $SiO_2$/Si | — | — | 20.6 | 2 |
| $SiO_2$/Si | 403.3 | 383 | 20.3 | 3 |
| $SiO_2$/Si | — | — | 19-21 | 4 |
| $SiO_2$/Si | 405 | 384.7 | 20.3 | 5 |
| $SiO_2$/Si | 404.4 | 383.8 | 20.6 | 6 |
| Mica | 407 | 387 | 20 | 7 |
| $SiO_2$/Si | — | — | 21 | 8 |
| Sapphire | 405 | 305 | 20 | 9 |
| Au foil | 406.9 | 387.0 | 19.9 | 10 |
| Sapphire | 405 | 384 | 21 | 11 |
| $SiO_2$/Si | 404 | 383 | 21 | 12 |
| Graphene/ $SiO_2$/Si | — | — | 21.3 | 13 |
| $SiO_2$/Si | 405.9 | 385.7 | 20.2 | 14 |
| $SiO_2$/Si | 404.5 | 384.5 | 20 | 15 |
| $SiO_2$/Si | 404 | 383 | 21 | 16 |
| $SiO_2$/Si | — | — | 20.9 | 17 |
| $SiO_2$/Si | 404.4 | 384.0 | 20.4 | 18 |
| $SiO_2$/Si | 404 | 383 | 21 | 19 |
| $Al_2O_3$ | 404.9 | 384.7 | 20.2 | 20 |
| $SiO_2$/Si | — | — | 18.2 | 21 |
| $SiO_2$/Si | 385.8 | 403.8 | 18 | 22 |

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