

Supporting Information

Effect of Nb Doping on Chemical Sensing Performance of Two-Dimensional Layered MoSe₂

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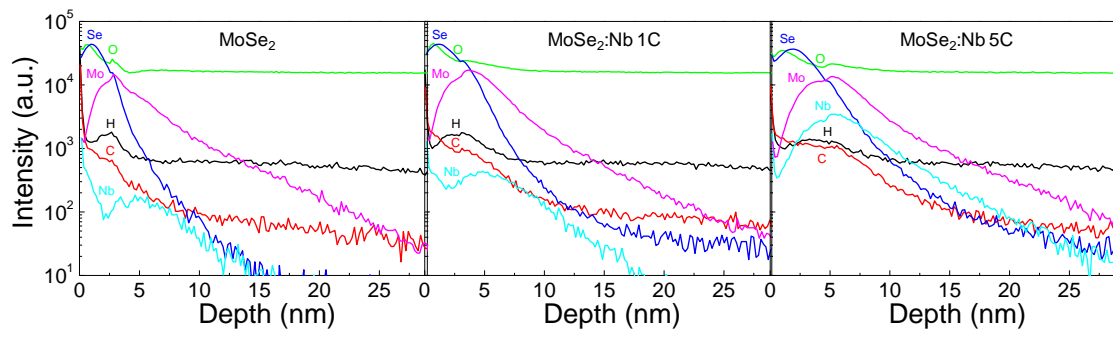


Figure S1. SIMS depth profile of Mo, Nb, Se, O, H, and C atoms on MoSe₂, MoSe₂:Nb 1C, and MoSe₂:Nb 5C films.

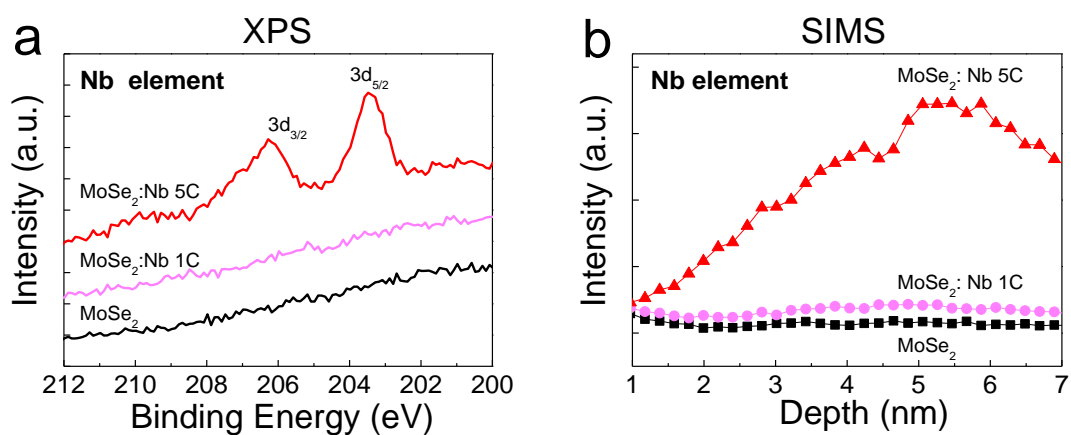


Figure S2. Comparison of detection resolution between (a) XPS and (b) SIMS analysis. Note that Nb element of MoSe₂:Nb 1C sample could not be detected by XPS analysis so that there was no Nb element signal on both MoSe₂ and MoSe₂:Nb 1C films. However, from SIMS depth profile analysis, the Nb element signal of MoSe₂:Nb 1C film was clearly detected.

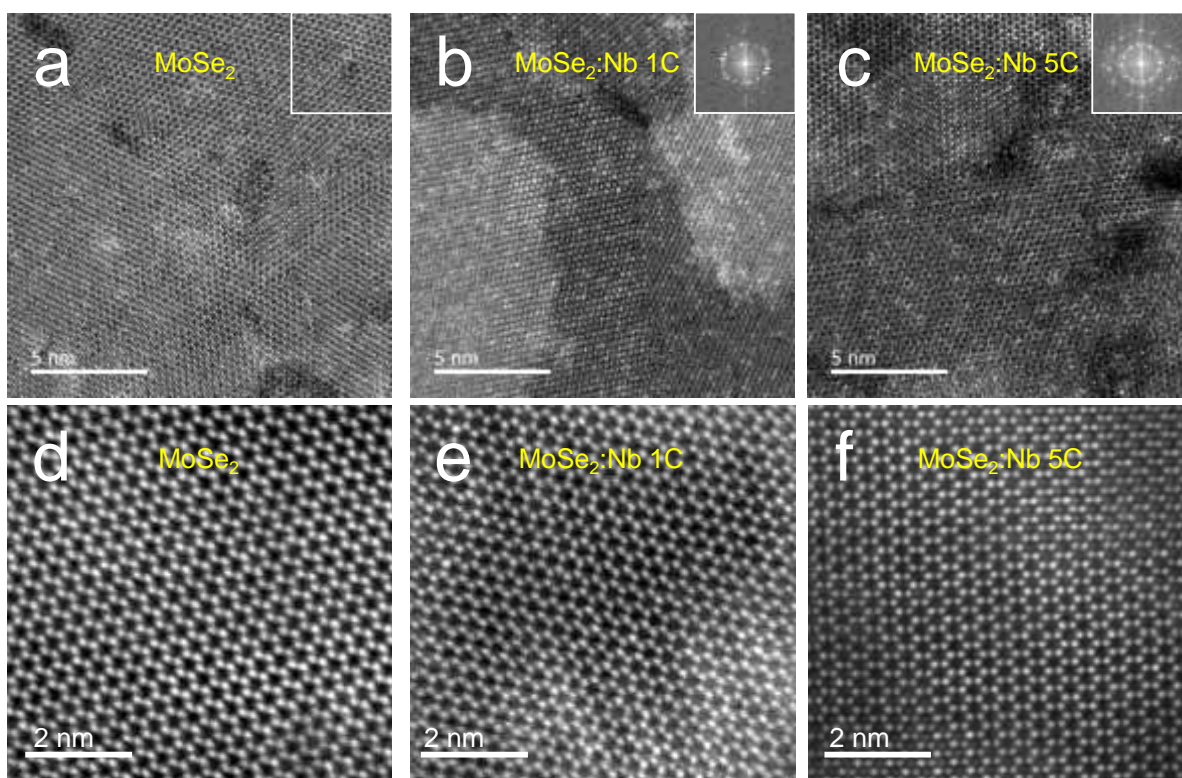


Figure S3. Planar ADF-STEM images of (a) MoSe₂, (b) MoSe₂:Nb 1C, and (c) MoSe₂:Nb 5C films. The inset figures indicate FFT pattern images. ADF-STEM images of (d) MoSe₂, (e) MoSe₂:Nb 1C, and (f) MoSe₂:Nb 5C films showing hexagonal crystal structures consisting of Mo, Nb, and Se atoms.

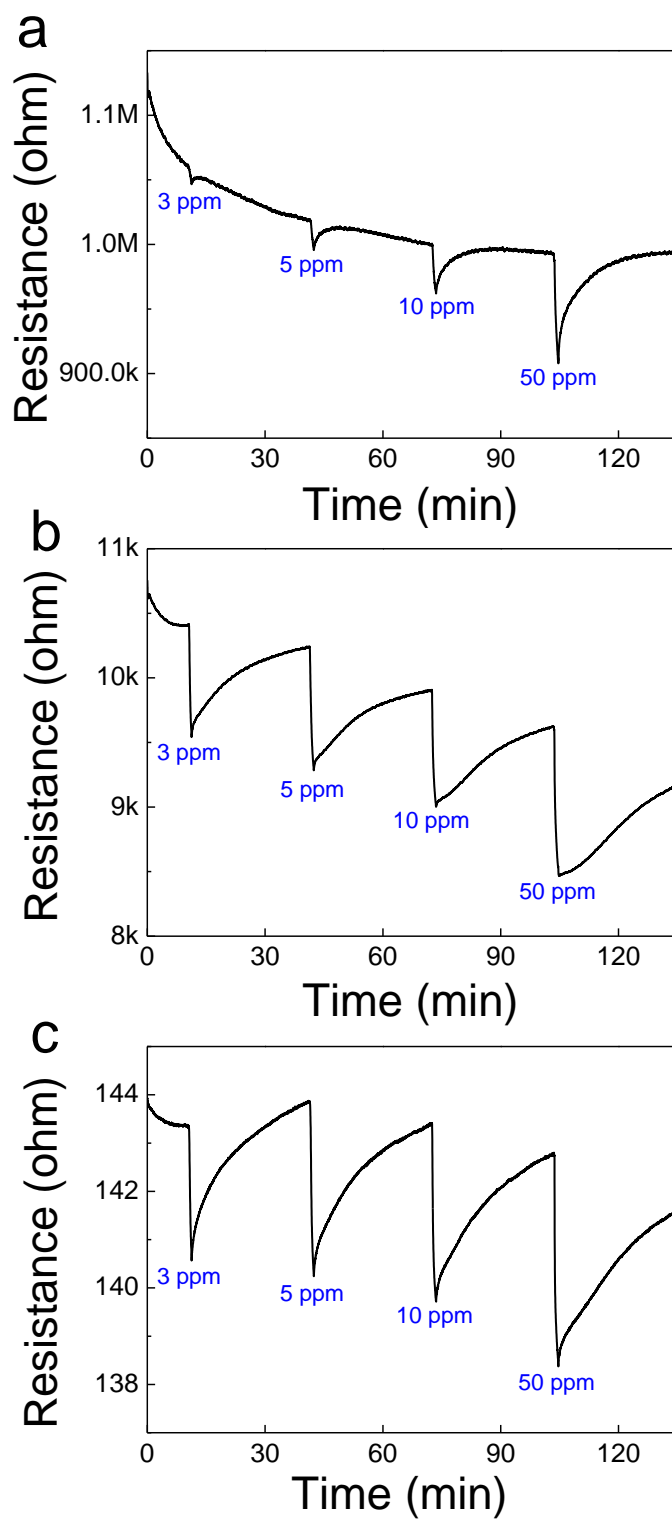


Figure S4. Transient resistance change of (a) MoSe₂, (b) MoSe₂:Nb 1C, and (c) MoSe₂:Nb 5C devices under NO₂ concentration varying from 3 to 50 ppm

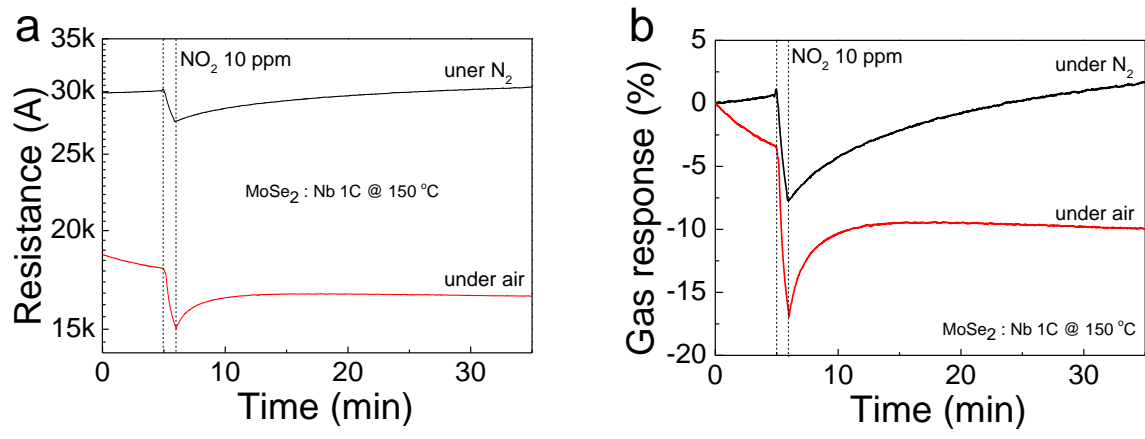


Figure S5. (a) Resistance changes and (b) gas responses of MoSe₂:Nb 1C device under different recovery gas condition (N₂ and air)