

Quality Evaluation of WS₂ Monolayer with Raman Scattering

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Two-dimensional transition metal dichalcogenides (TMDs) are known to have remarkable optical and electrical properties which makes them be promising materials for optoelectronic and nanoelectronic devices. The performance of TMDs is expected to be easily affected by the defect density. However, defect-related Raman studies of TMDs are rarely done. In the case of tungsten disulfide (WS₂), recently, a study of the defect-related Raman scattering like D mode of graphene has been reported. Here, we controlled the density of vacancies in monolayer WS₂ and identified the relationship between the amount of vacancy and intensity of defect related Raman mode of WS₂. This study shows that D mode of WS₂ can be utilized to characterize the quality of monolayer WS₂.

References

1. Chanwoo Lee and Mun Seok Jeong, *ACS Nano*. 12, 9982 (2018)