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Surface Plasmon-Enhanced Optical Absorption in Monolayer MoS₂ with One-Dimensional Au Grating

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Highlights

- Optical absorption enhancement in monolayer MoS₂ is achieved with 1D gold grating.
- The absorption enhancement is attributed to the enhancement of localized electromagnetic field induced by surface plasmon polaritons.
- Tuning the period of grating enables the local absorption of the monolayer MoS₂ due to B exciton transition to be nearly 7 times higher than the intrinsic one.
- Inserting a hafnium dioxide spacer can further enlarge the absorption to approximately unity.

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