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【206】 Excitation Spectrum of Spin Orbit Coupled Monolayers

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Transition metal dichalcogenides (TMDs) have revolutionised the field of electron layers, their spin orbit coupling (SOC) allowing an efficient control of the response in „spintronic” applications. The band deformation induced by graphene’s intrinsic SOC, though comparatively small, significantly influences the excitations. The resulting particle-hole bands cause the rapid Landau damping of plasmons, long-lived outside these regions. For specific SOC tunings achievable via adatoms and electric fields, we predict an additional collective mode above the „standard” (charge-density) intraband plasmon.

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