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Impurity-induced anisotropic semiconductor-semimetal transition in monolayer biased black phosphorus

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Highlights

- Investigation and comparison the direction-dependent DOS of monolayer in the presence of impurity and bias voltage by using the tight-binding model and Green's function technique.
- Observation of electronic phase transition in x -direction and band gap variation in the presence of charged impurity and bias voltage in both directions.
- Appearing the extra Van Hove singularities due to the presence of impurity.

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