

**Electronic Supporting Information**  
**For**  
**“Tuning Penta-Graphene Electronic Properties Through Engineered Line Defects”**

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**Projected Density of States:  $sp^3$  Doping Scheme**

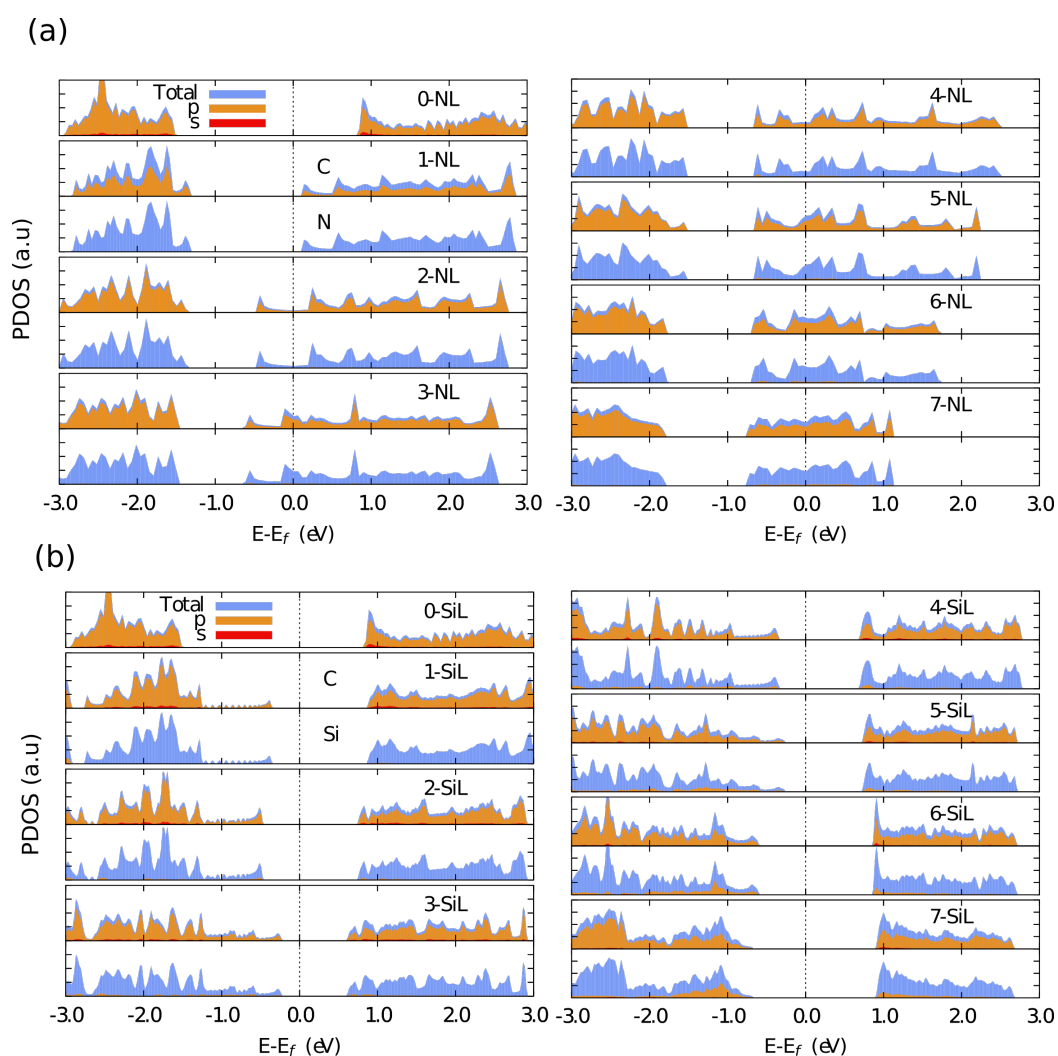


Figure1-ESI: Projected Density of States (PDOS) for all schemes of  $sp^3$  carbon doping considering both (a) Nitrogen and (b) Silicon atoms. In this figure, X-NL and X-SiL denote the number (X) of dopant lines systematically inserted into the penta-graphene structure.

## Projected Density of States: $sp^2$ Doping Scheme

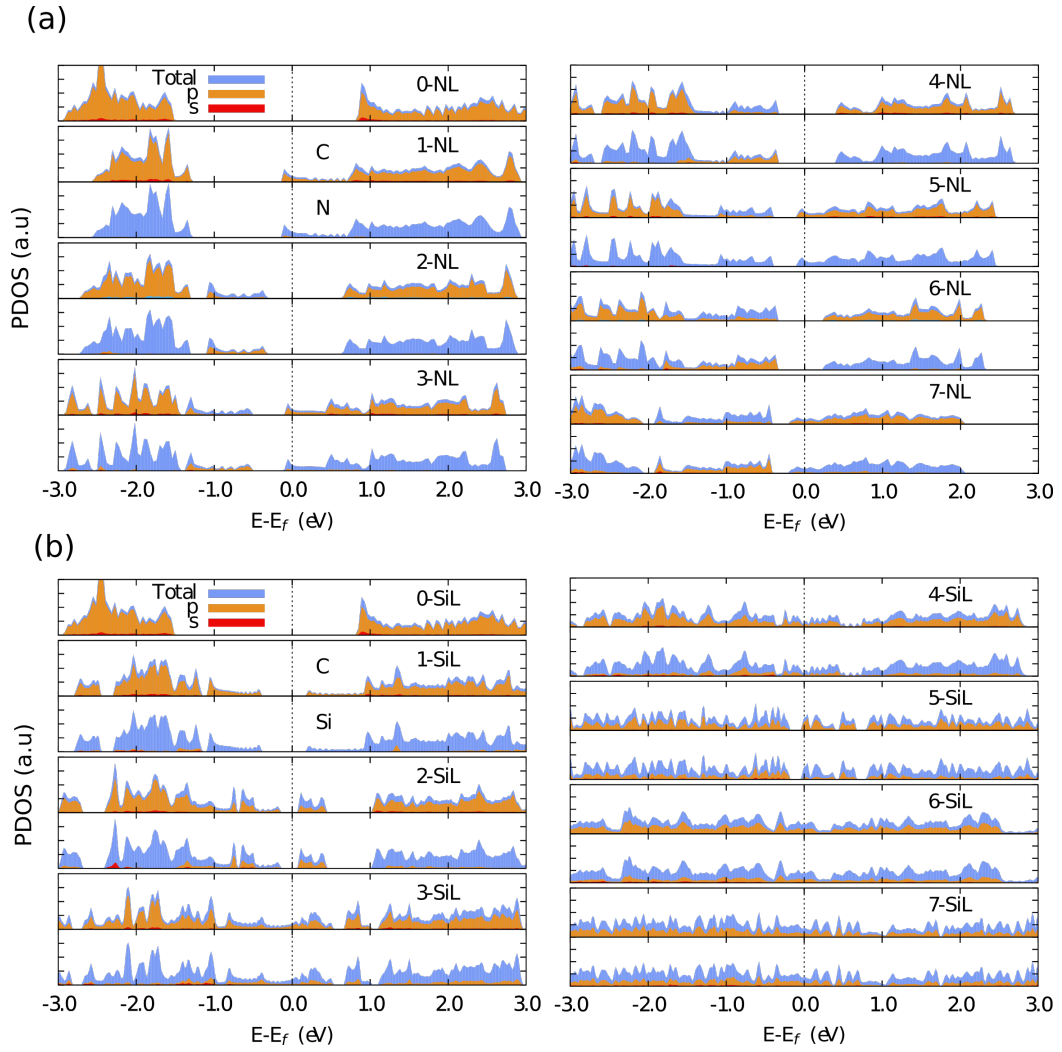


Figure2-ESI: Projected Density of States (PDOS) for all schemes of  $sp^2$  carbon doping considering both (a) Nitrogen and (b) Silicon atoms. In this figure, X-NL and X-SiL denote the number (X) of dopant lines systematically inserted into the penta-graphene structure.