

Supplementary Information

**Zinc Germanium Nitrides and Oxide Nitrides: The Influence of Oxygen on Electronic and Structural Properties.**

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**1. DOS Figures ZnGeN<sub>2</sub>**

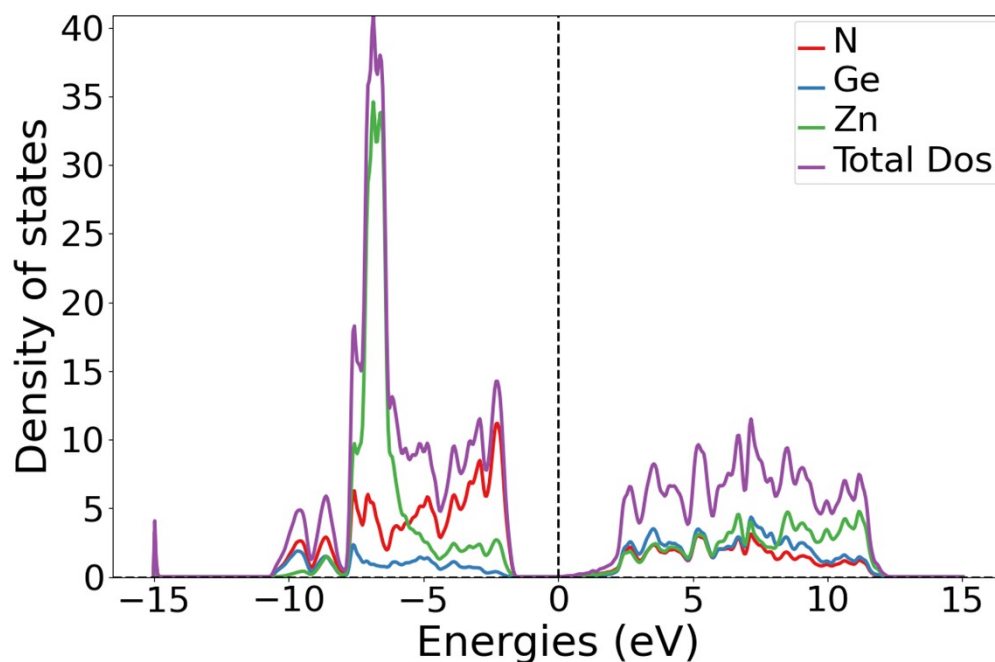


Figure S1: DOS of ZnGeN<sub>2</sub> with pDOS of the different atom types.

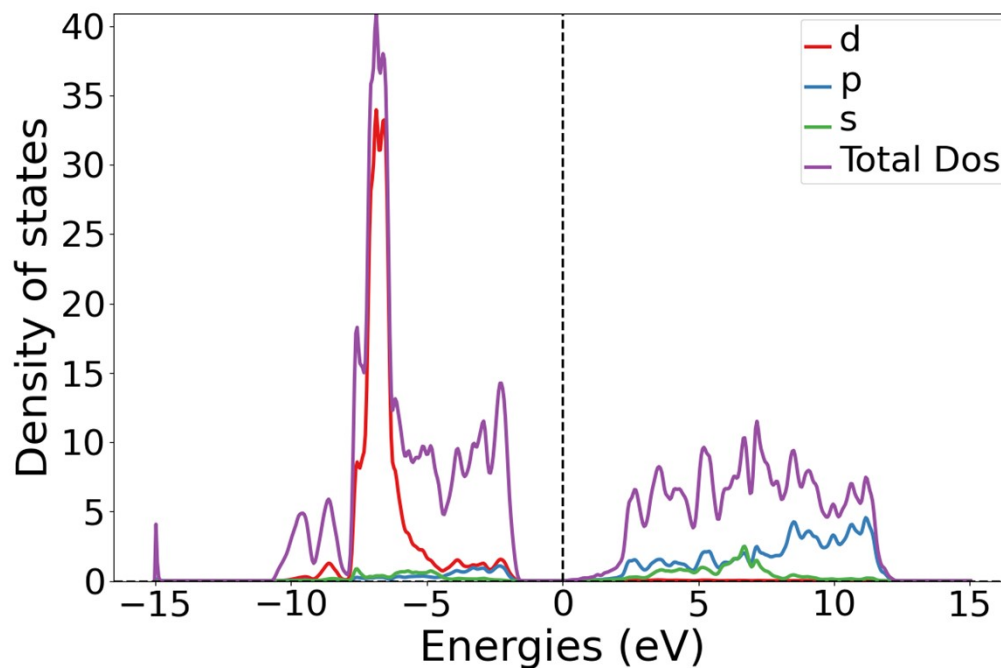


Figure S2: Orbital separated pDOS of the Zn orbitals

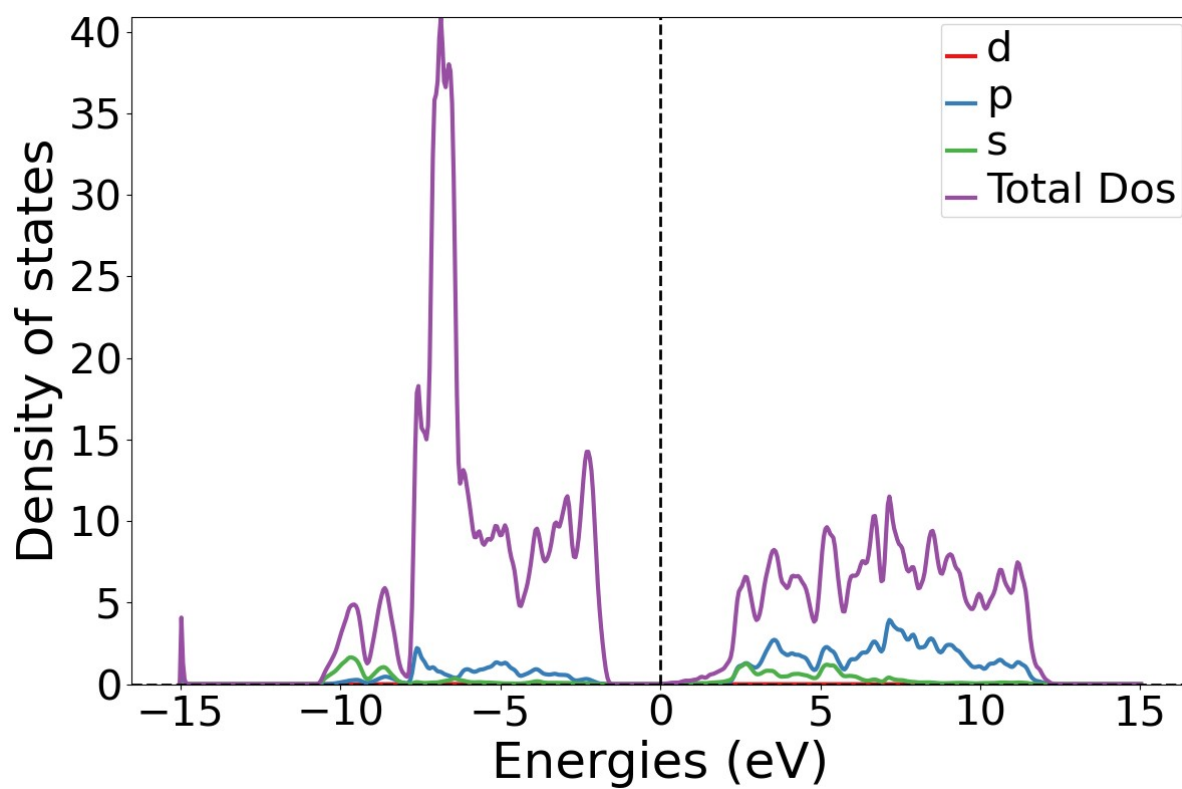


Figure S3: Orbital separated pDOS of the Ge orbitals

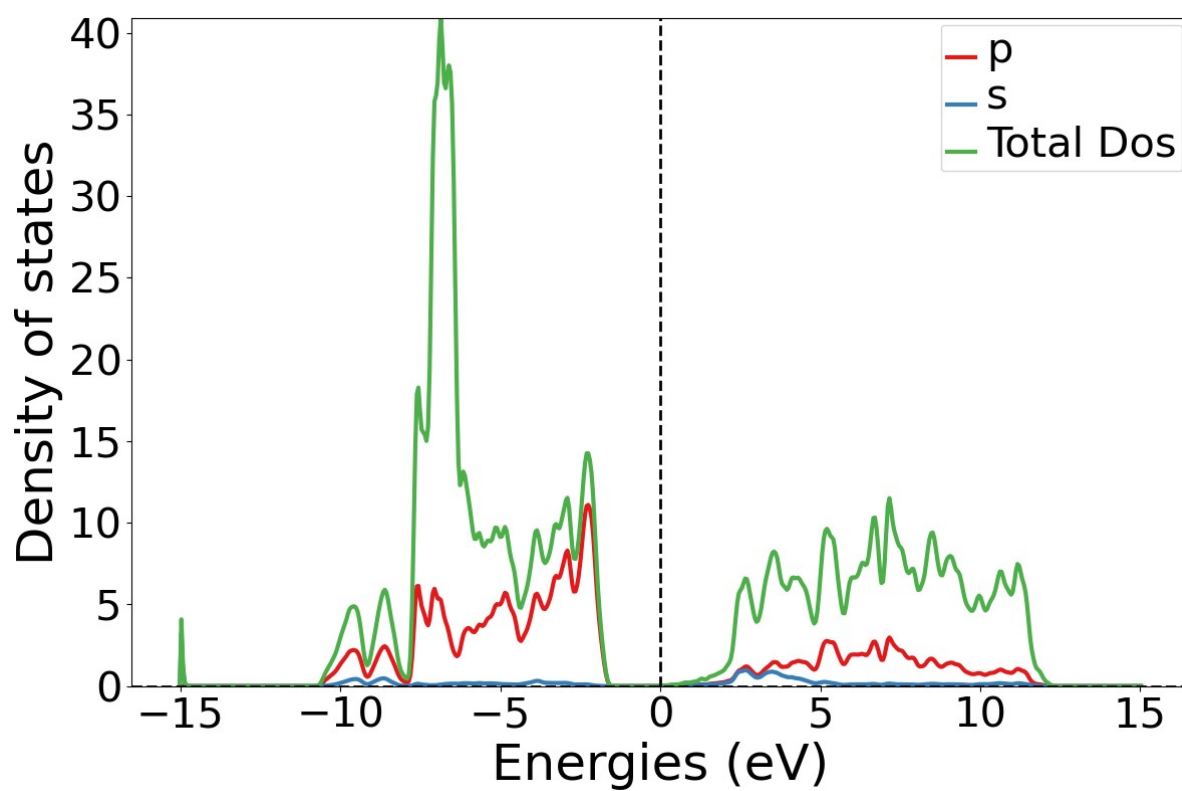


Figure S4: Orbital separated pDOS of the N orbitals

## 2. DOS of $\text{Zn}_{1.25}\text{Ge}_{0.75}(\text{N}_{0.75}\text{O}_{0.25})_2$ (a)

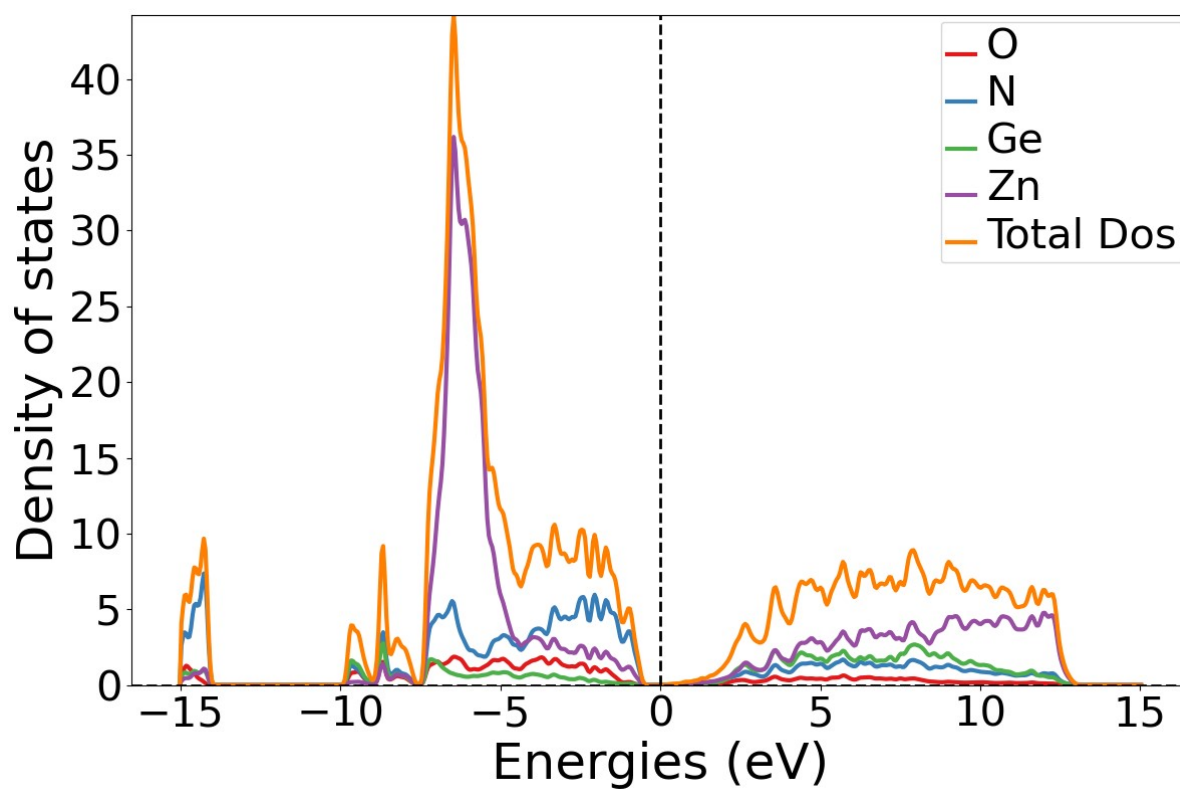


Figure S5: Total DOS with pDOS contributions of all atom types.

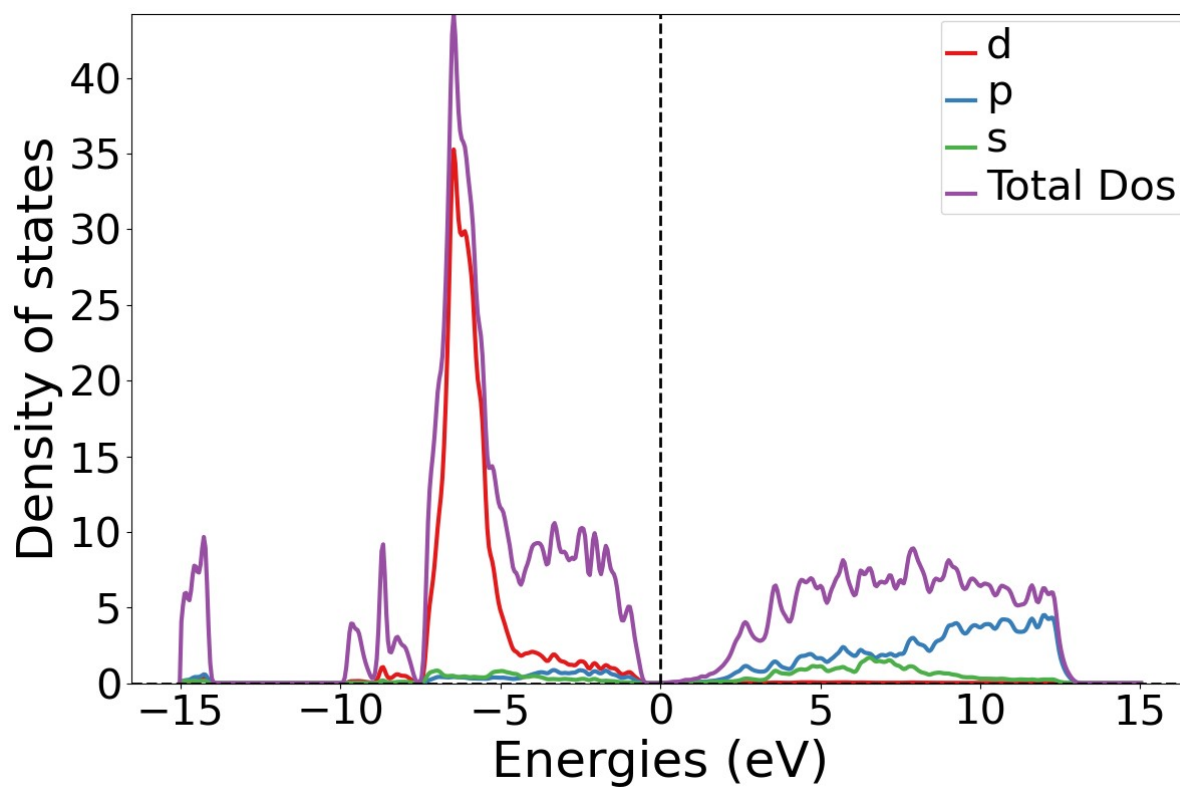


Figure S6: Orbital separated pDOS of the Zn orbitals

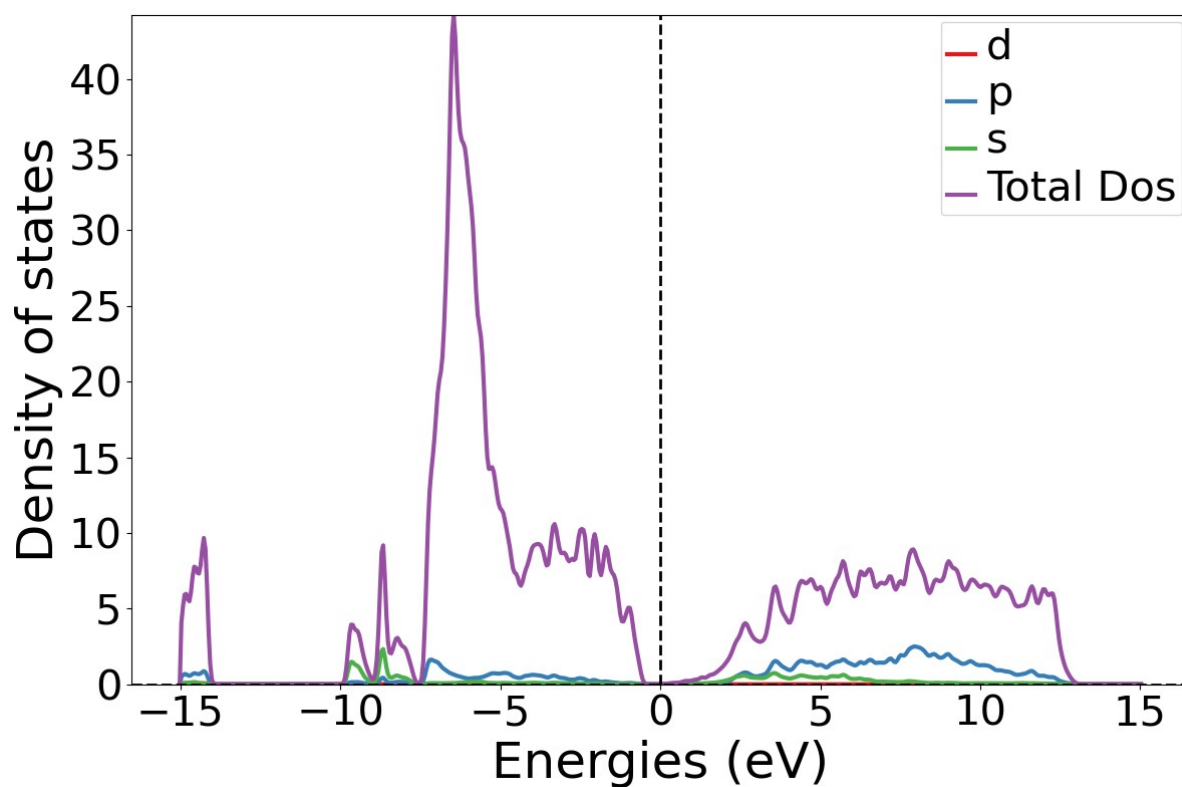


Figure S7: Orbital separated pDOS of the Ge orbitals

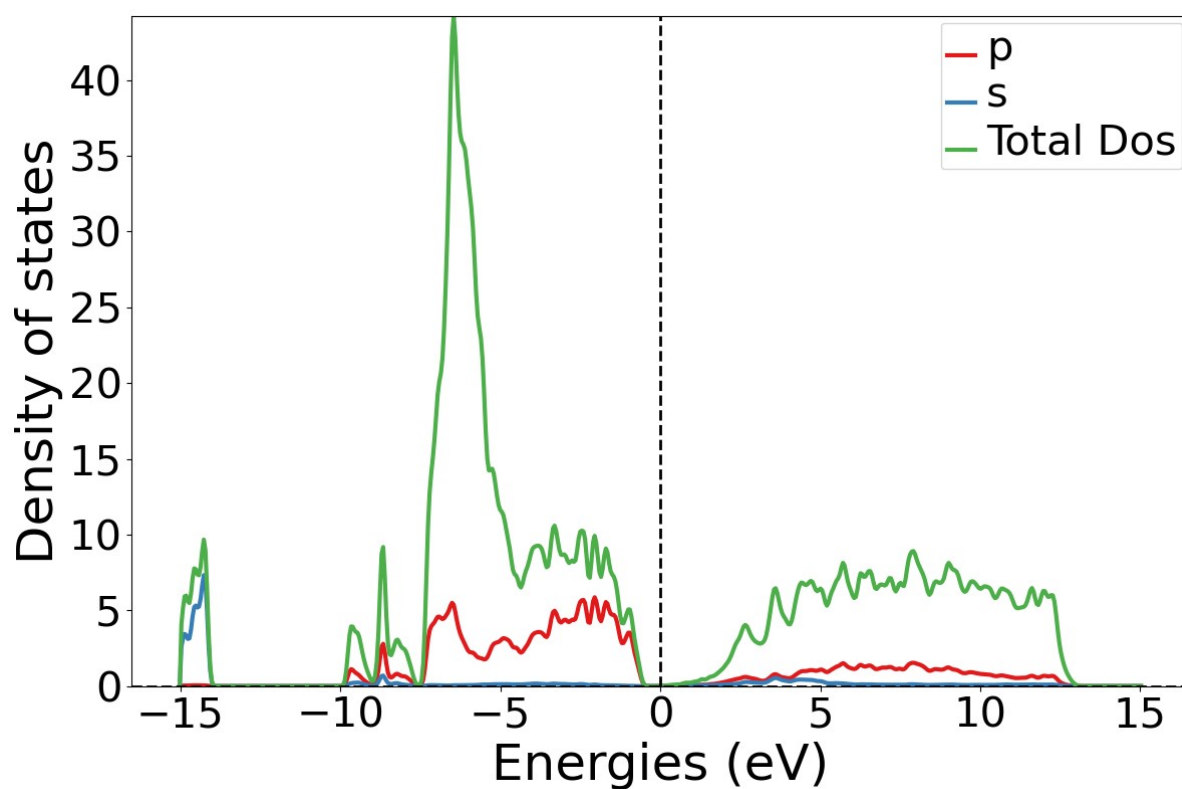


Figure S8: Orbital separated pDOS of the N orbitals

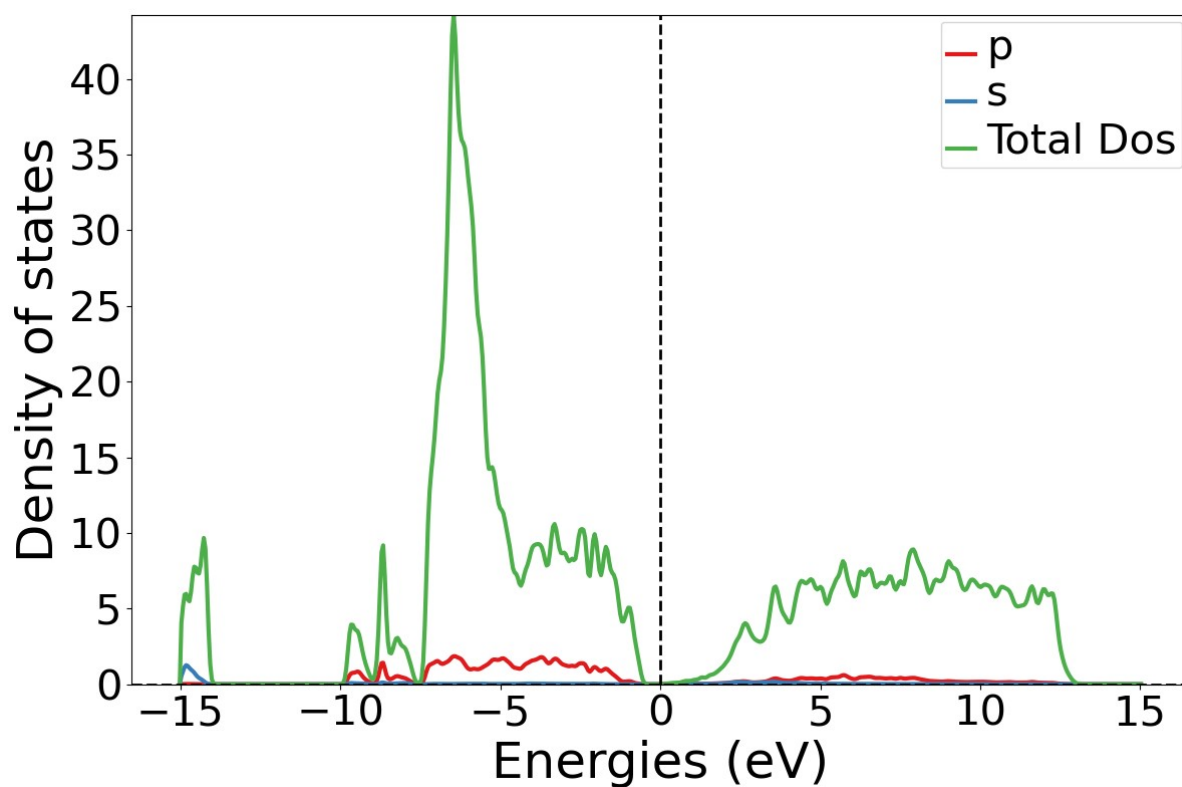


Figure S9: Orbital separated pDOS of the O orbitals

### 3. DOS of $\text{Zn}_{1.25}\text{Ge}_{0.75}(\text{N}_{0.75}\text{O}_{0.25})_2$ (b)

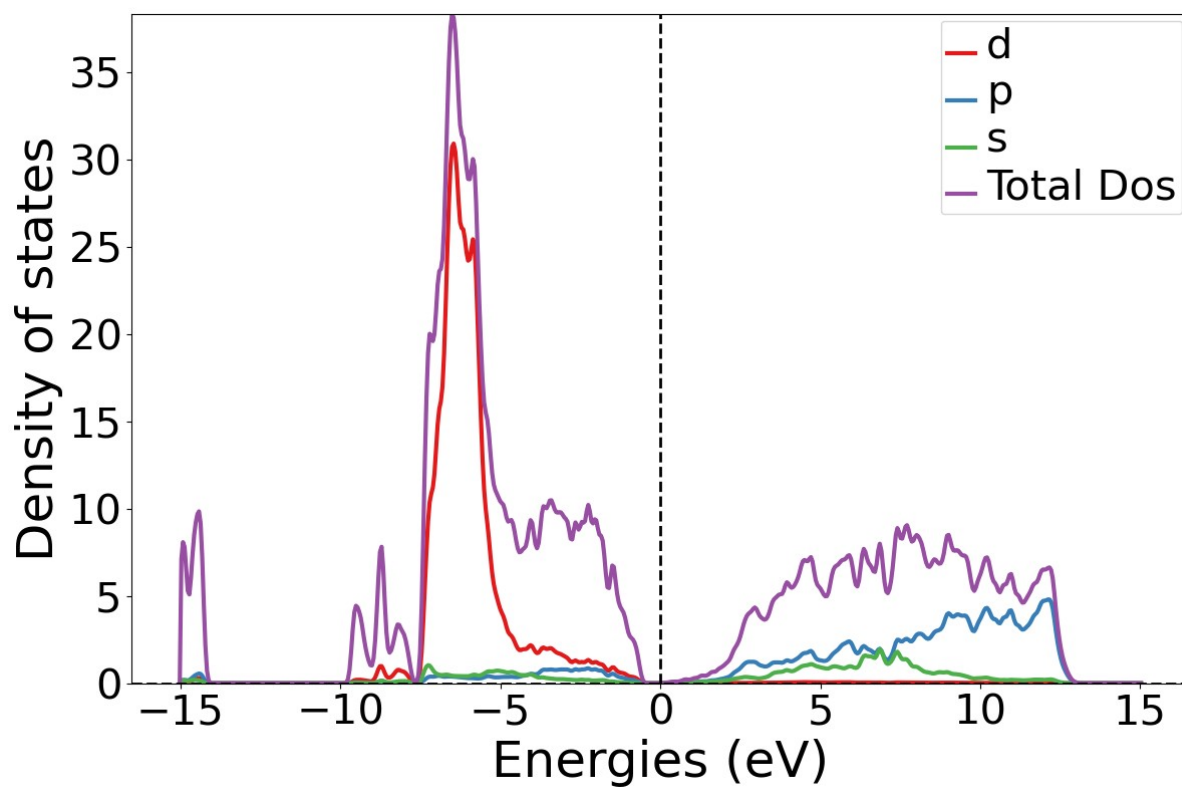


Figure S10: Orbital separated pDOS of the Zn orbitals

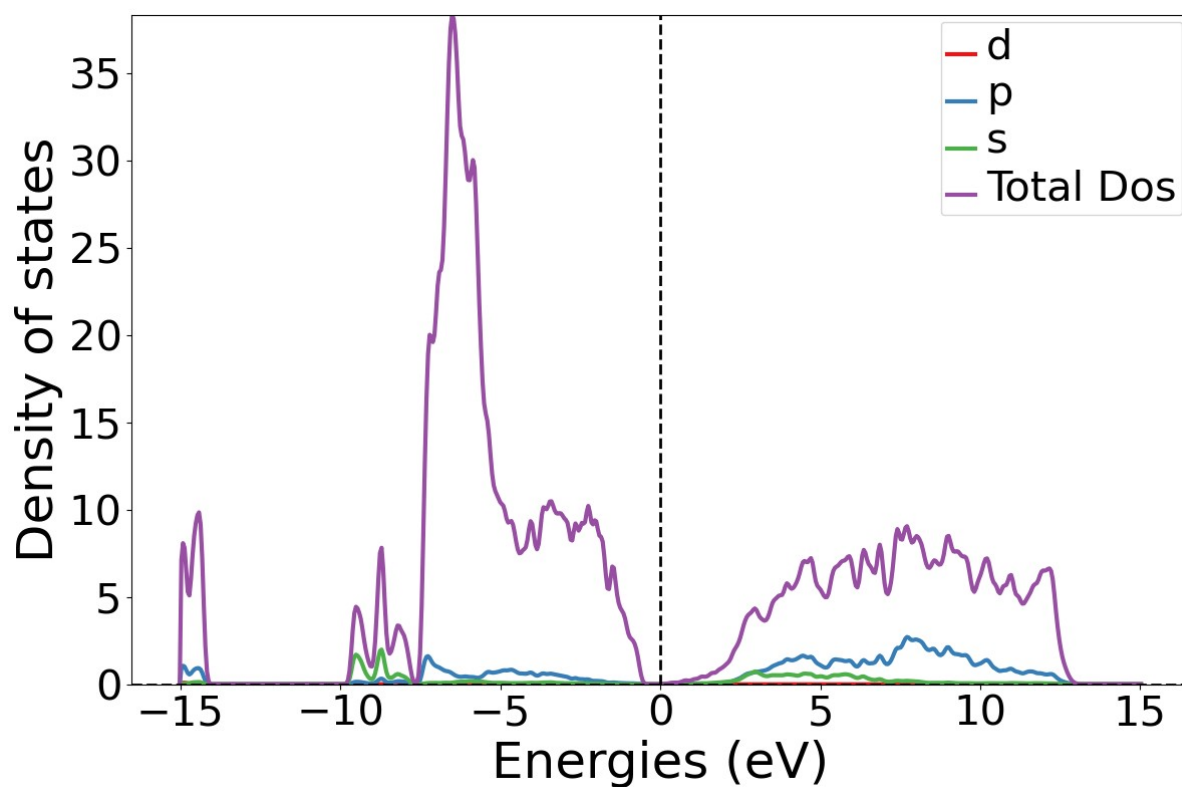


Figure S11: Orbital separated pDOS of the Ge orbitals

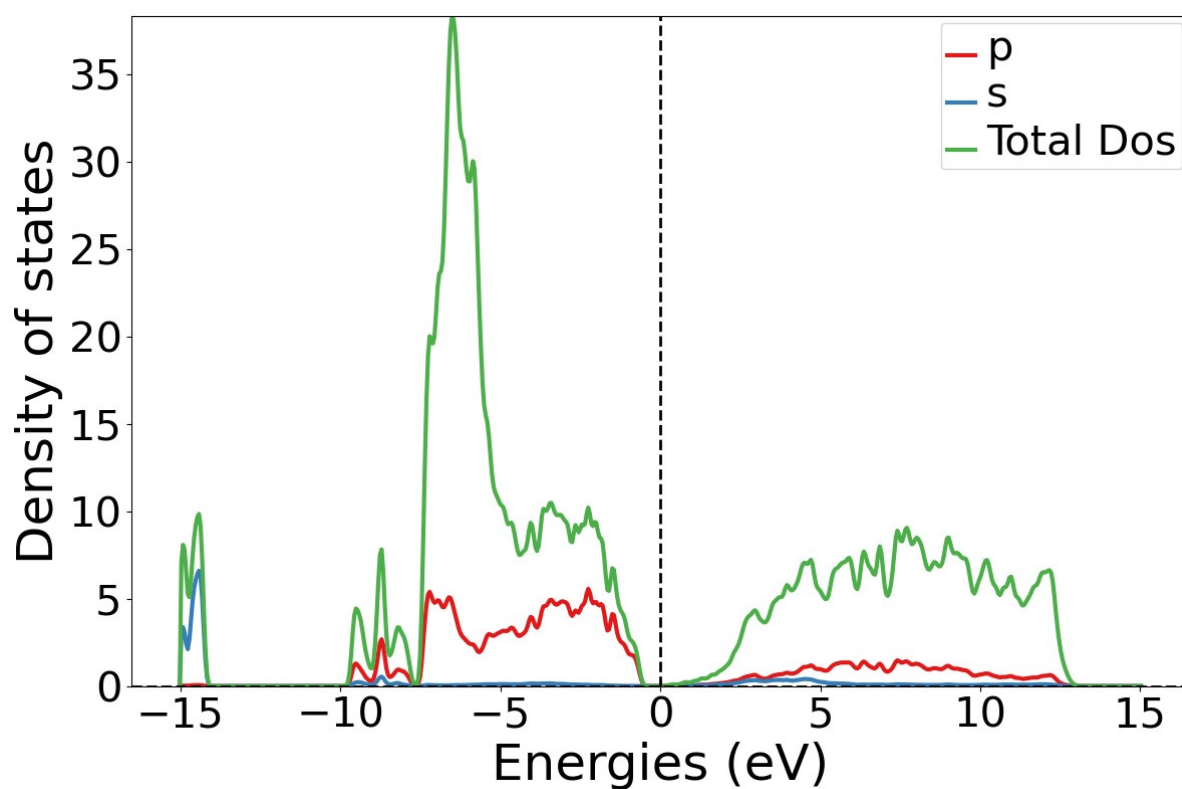


Figure S12: Orbital separated pDOS of the N orbitals

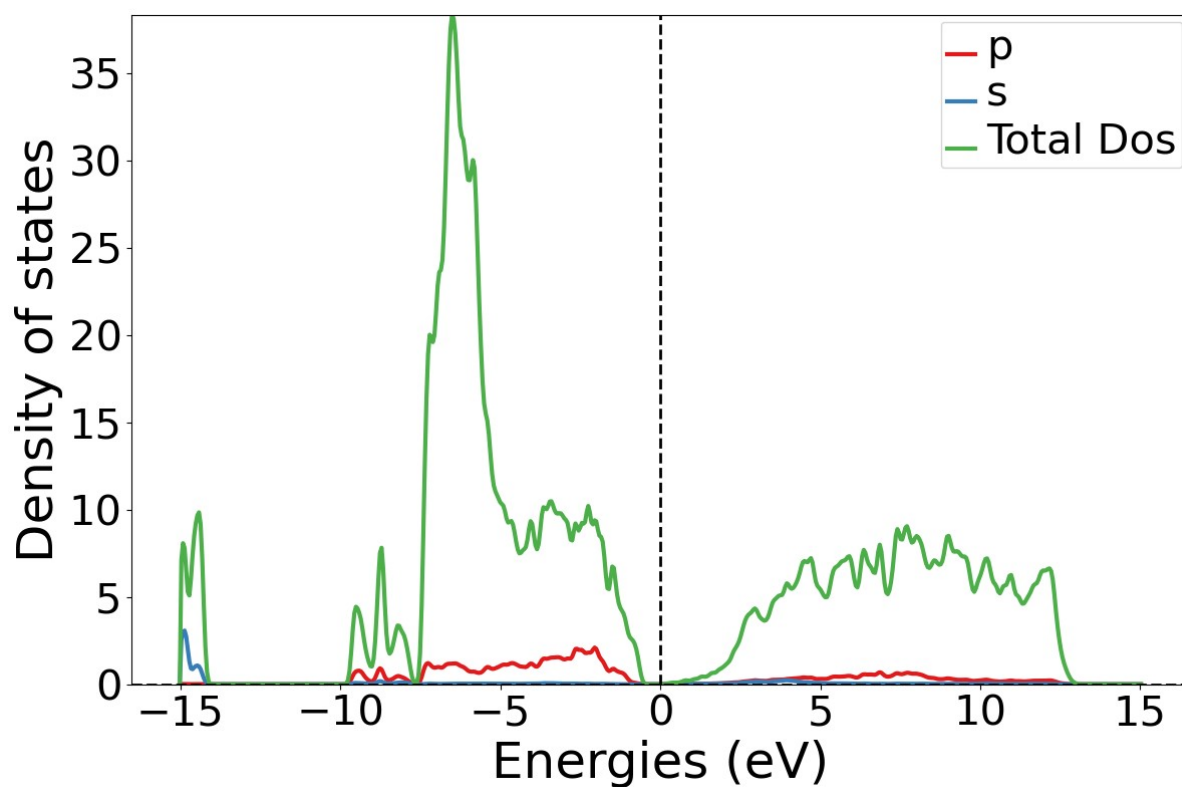


Figure S13: Orbital separated pDOS of the O orbitals

#### 4. COHP of $\text{Zn}_{1.25}\text{Ge}_{0.75}(\text{N}_{0.75}\text{O}_{0.25})_2$ (a)

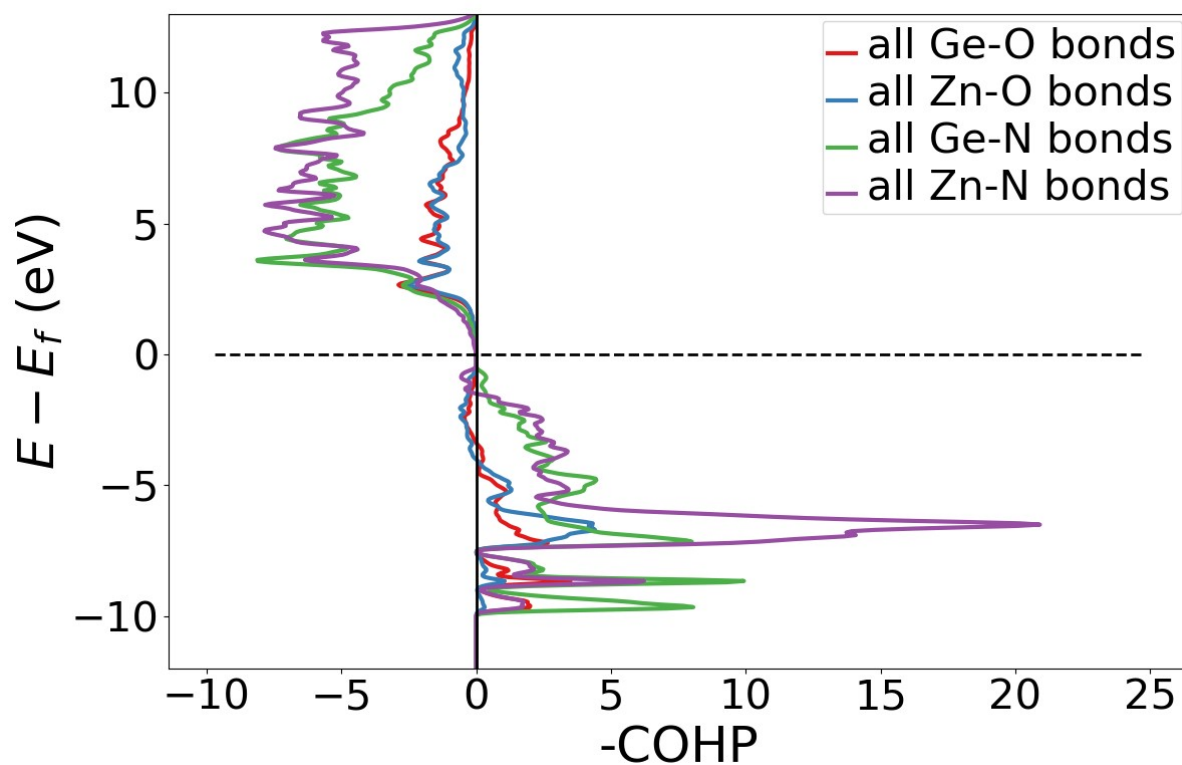


Figure S14: COHPs summed over the Ge-N, Zn-N, Ge-O and Zn-O bonds.