

## Supplementary Info

### Phosphorus-Nitrogen Compounds. Part 36. Syntheses, Langmuir-Blodgett Thin Films and Biological Activities of Spiro-Bino-Spiro Trimeric Phosphazenes

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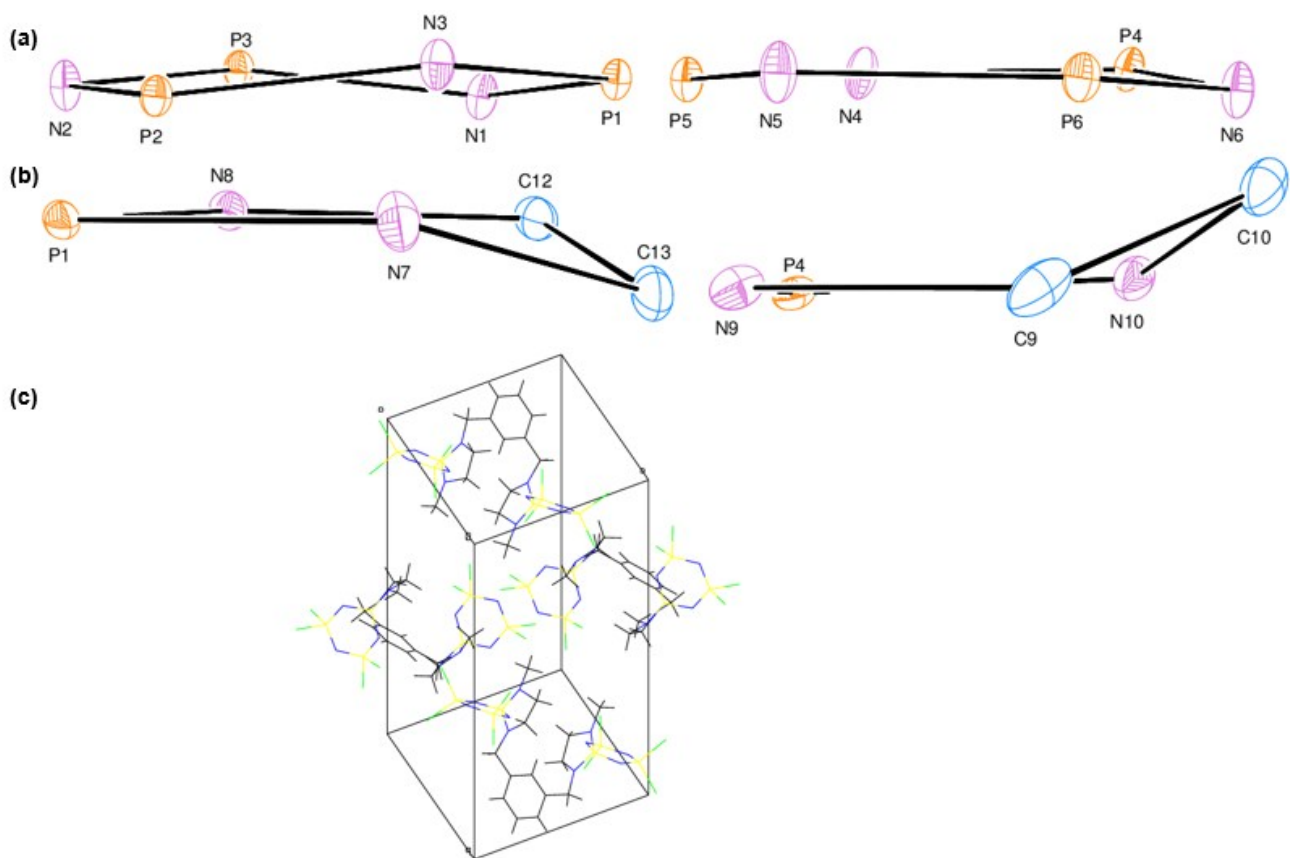
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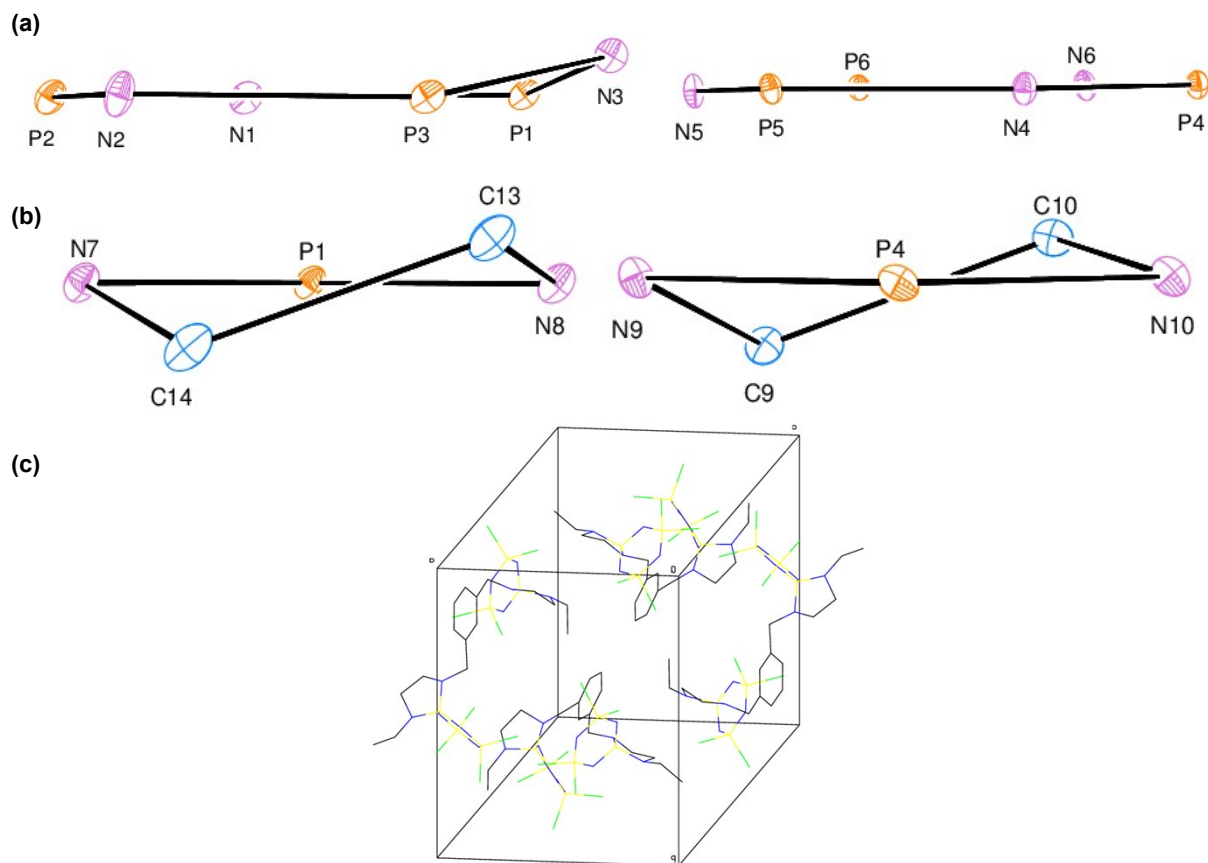
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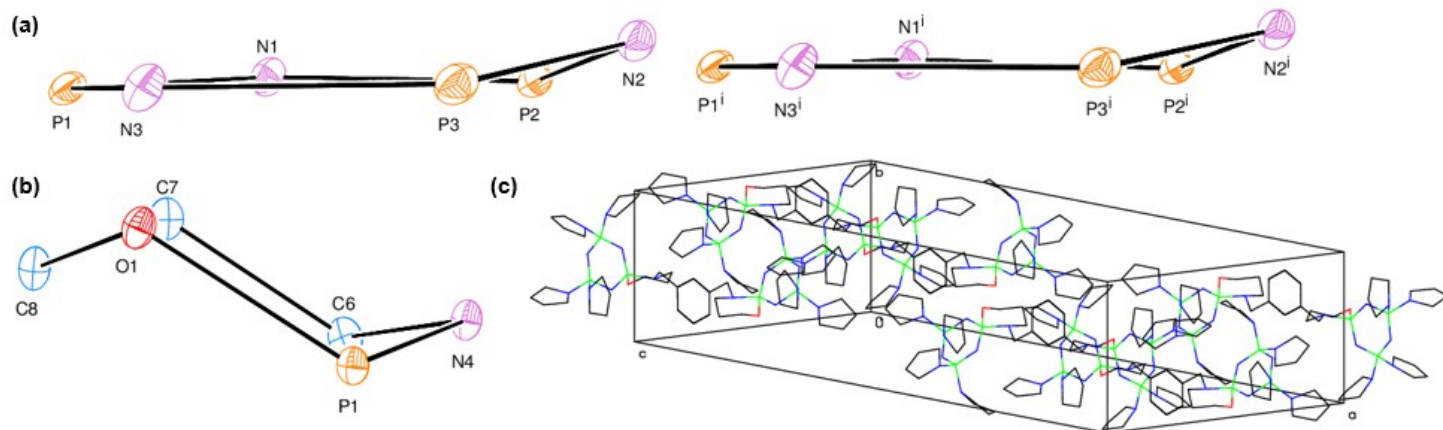
- **Fig. S1.** The conformations of (a) the phosphazene ring and (b) the five-membered spiro-ring. (c) The packing diagram of **5**.
- **Fig. S2.** The conformations of (a) the phosphazene ring and (b) the five-membered spiro-ring. (c) The packing diagram of **6**.
- **Fig. S3.** The conformations of (a) the phosphazene ring and (b) the six-membered spiro-ring. (c) The packing diagram of **12**.
- **Fig. S4.** The shapes of the phosphazene rings in **5**, **6** and **12** with torsion angles (deg).



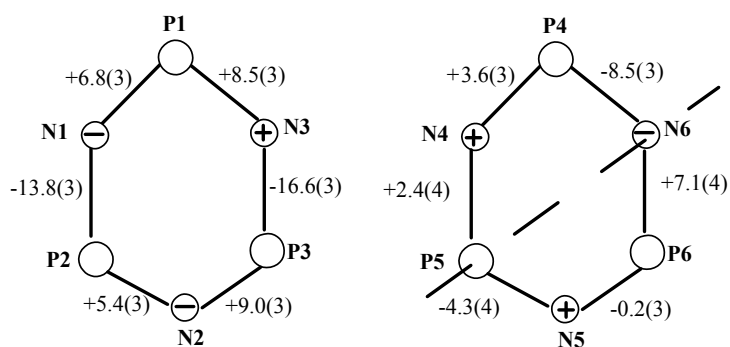
**Fig. S1.** The conformations of (a) the phosphazene ring and (b) the five-membered spiro-ring. (c) The packing diagram of **5**.



**Fig. S2.** The conformations of (a) the phosphazene ring and (b) the five-membered spiro-ring. (c) The packing diagram of **6**.

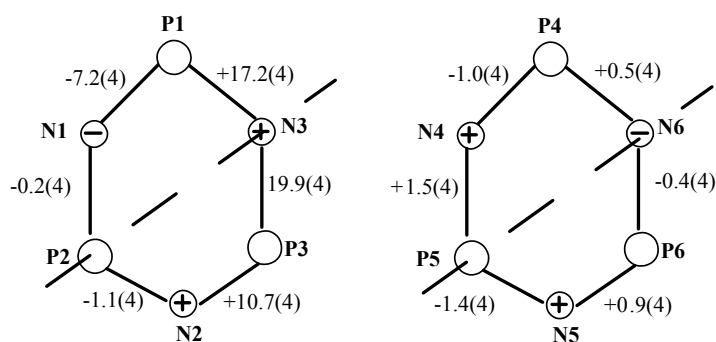


**Fig. S3.** The conformations of (a) the phosphazene ring and (b) the six-membered spiro-ring. (c) The packing diagram of **12**.



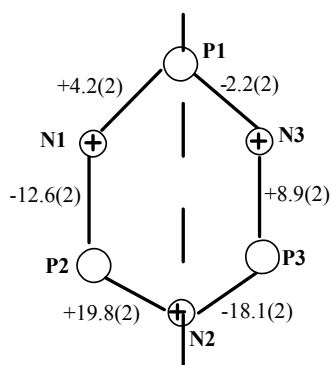
**compound 5**

The P1/N1/P2/N2/P3/N3 phosphazene ring does not have a pseudo mirror plane, but the P4/N4/P5/N5/P6/N6 ring seems to have a pseudo mirror plane.



**compound 6**

The P1/N1/P2/N2/P3/N3 phosphazene ring does not have a pseudo mirror plane, but the P4/N4/P5/N5/P6/N6 ring seems to have a pseudo mirror plane.



**compound 12**

The P1/N1/P2/N2/P3/N3 phosphazene ring has a pseudo mirror plane.

**Fig. S4.** The shapes of the phosphazene rings in **5**, **6** and **12** with torsion angles (deg).