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A Retro Diels–Alder Route to Diphosphorus Chemistry: Molecular Precursor Synthesis, Kinetics of P₂ Transfer to 1,3-Dienes, and Detection of P₂ by Molecular Beam Mass Spectrometry  

Pass the P₂

**Significance:** Cummins and co-workers have developed a novel system for thermally transferring the diphosphorus molecule P₂ from a transannular diphosphorus bisanthracene adduct 4 to various 1,3-dienes via a retro-Diels–Alder reaction.

**Comment:** Treatment of 4 with platinum ethylene complex [(C₂H₄)Pt(PPh₃)₂] at room temperature furnishes the expected platinum diphosphorus complex (P₂)[Pt(PPh₃)₂]₂, broadening the scope of this P₂ precursor to inorganic complexes.

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**Trapping reactions:**

1. **MgCl₂·3THF**
   - THF, –78 °C
   - 50% yield

2. **AlCl₃**
   - CH₂Cl₂, thawing to r.t.
   - 65% yield

3. **LiAlH₄**
   - THF, thawing to r.t.
   - 86% yield

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