C–H Arylation with Platinum

**Significance:** C–H activation in aryl systems finds broad applicability in the construction of conjugated organic materials. This paper reports the use of a platinum catalyst to couple aryl groups pendant on hypervalent iodine to simple arenes via a C–H activation pathway.

**Comment:** The authors have previously reported a similar process using a palladium catalyst (ACS Catal., 2011, 1, 170). However, with the exception of some examples in which the reaction resulted in mixed isomers, the use of a platinum catalyst produced materials with different selectivity than the palladium catalyst, providing two processes with complementary reactivity.

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**Selected examples:**

- ![Chemical structure](image1)
  - MeO
  - Ph
  - 83% yield
  - MeO
  - Ph
  - 48% yield
  - Cl
  - p-MeOCH₃
  - 66% yield

- ![Chemical structure](image2)
  - F
  - Ph
  - 52% yield
  - m/p = 6:1
  - F
  - p-MeOCH₃
  - 53% yield
  - m/p = 1.4:1
  - Br
  - p-MeOCH₃
  - 58% yield
  - m/p = 2.5:1

**Proposed mechanism:**

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\begin{align*}
\text{Ar} & \quad + \quad [\text{Ar}_2\text{X}]^\text{TFA} \\
\text{Na}_2\text{PtCl}_4 (2.5–5 \text{ mol%}) & \quad \text{TFA or AcOH (0–32 equiv)} \\
\text{Bu}_4\text{NO}^+ & \quad (5 \text{ equiv}) \\
100–120 \degree \text{C}, 72 \text{ h} & \quad \rightarrow \\
\end{align*}
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