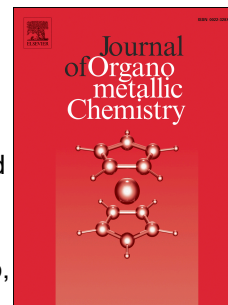


# Accepted Manuscript

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PII: S0022-328X(18)30435-2

DOI: [10.1016/j.jorganchem.2018.05.024](https://doi.org/10.1016/j.jorganchem.2018.05.024)

Reference: JOM 20458

To appear in: *Journal of Organometallic Chemistry*

Received Date: 7 March 2018

Revised Date: 15 May 2018

Accepted Date: 30 May 2018

Please cite this article as: T. Beppu, K. Sakamoto, Y. Nakajima, K. Matsumoto, K. Sato, S. Shimada, Hydrosilane synthesis via catalytic hydrogenolysis of halosilanes using a metal-ligand bifunctional iridium catalyst, *Journal of Organometallic Chemistry* (2018), doi: 10.1016/j.jorganchem.2018.05.024.

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## Hydrosilane Synthesis via Catalytic Hydrogenolysis of Halosilanes Using a Metal-Ligand Bifunctional Iridium Catalyst

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**Abstract** Hydrogenolysis of various halosilanes was catalysed by iridium amido complexes to produce hydrosilanes. Selective *monohydrogenolysis* of di- and trichlorosilanes similarly proceeded, resulting in the formation of chlorohydrosilanes ( $R_2SiHCl$  or  $RSiHCl_2$ ) as synthetically important building blocks for various organosilicon compounds. A mechanistic study supported the *in-situ* formation of an iridium hydride species as a key intermediate, which could transfer the hydride to the silicon atom through a metal–ligand bifunctional mechanism. One-pot hydrotrimethylsilylation of olefins was achieved *via* successive hydrogenolysis and hydrosilylation reactions starting from  $Me_3SiCl$ .

**Keywords:** Hydrogenolysis, Halosilane, Hydrosilane, Iridium amido complex

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