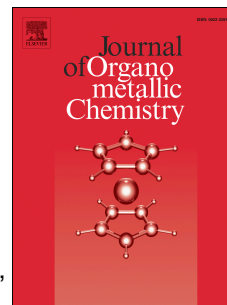


Accepted Manuscript

A new class of well-defined ruthenium catalysts for enantioselective transfer hydrogenation of various ketones

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PII: S0022-328X(18)30443-1

DOI: [10.1016/j.jorganchem.2018.06.002](https://doi.org/10.1016/j.jorganchem.2018.06.002)

Reference: JOM 20461

To appear in: *Journal of Organometallic Chemistry*

Received Date: 12 April 2018

Revised Date: 30 May 2018

Accepted Date: 1 June 2018

Please cite this article as: C. Kayan, N. Meriç, K. Rafikova, A. Zazybin, N. Gürbüz, M. Karakaplan, M. Aydemir, A new class of well-defined ruthenium catalysts for enantioselective transfer hydrogenation of various ketones, *Journal of Organometallic Chemistry* (2018), doi: 10.1016/j.jorganchem.2018.06.002.

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1 **A New Class of Well-Defined Ruthenium Catalysts for Enantioselective Transfer**
2 **Hydrogenation of Various Ketones**

3
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12
13 **ABSTRACT**

14 A pair of novel optically pure phosphinite ligands were synthesized by ring opening reaction of
15 chiral amines with (*R*)-styrene oxide or (*S*)-glycidyl phenyl ether oxide using a straightforward
16 method in high yields and their ruthenium complexes were described in detail. The ruthenium
17 complexes proved to be highly efficient catalysts for the enantioselective hydrogenation of
18 ketones, affording products up to 99% ee. The results showed that the corresponding chiral
19 alcohols could be obtained with high activity and excellent enantioselectivities at the desired
20 temperature. (2*S*)-1-{benzyl[(1*S*)-1-(naphthalen-1-yl)ethyl]amino}-3-phenoxypropan-2-yl
21 diphenylphosphinito[dichloro(η^6 -benzene)ruthenium (II)] acts an excellent catalyst in the
22 reduction of ketones, giving the corresponding alcohol up to 99% ee.

23
24 **Keywords:** Asymmetric Transfer Hydrogenation; Chiral Ruthenium Complexes; Phosphinites;
25 Epoxide Ring opening; Homogeneous Catalysis.

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