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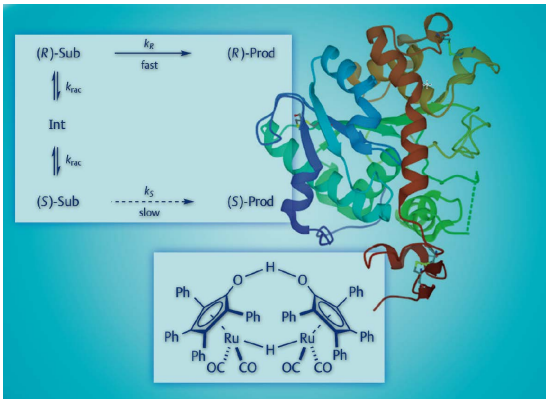
What's New?

New: Dynamic Kinetic Resolution (DKR) and Dynamic Kinetic Asymmetric Transformations (DYKAT)

Prof. J.-E. Bäckvall

Dynamic kinetic resolution (DKR) is a powerful process whereby a racemic starting material can be transformed in catalytic processes into a single isomer of a chiral compound in up to 100% yield. Whereas DKR applies to the resolution of racemic mixtures, when diastereomers, either as starting materials or as diastereomeric intermediates, are involved in the resolution process under dynamic conditions, the reactions are classified as "dynamic kinetic asymmetric transformations" (DYKAT). DKR and DYKAT are valuable tools for the preparation of enantiomerically enriched compounds that are of great importance in society today, in particular in pharmaceutical chemistry and in the agrochemical sector.



This volume, edited by **Prof. Jan-Erling Bäckvall**, covers the principles of DKR and DYKAT and presents examples of organocatalytic, chemoenzymatic, and transition-metal catalyzed approaches, including applications in the synthesis of complex, biologically active compounds.

Reviews include: (titles are clickable links)

- **Dynamic Kinetic Resolution and Dynamic Kinetic Asymmetric Transformation: Concepts, Classification, and Computing Tools**
  C. K. Winkler, K. Faber, and W. Kroutil
- **Organocatalytic Dynamic Kinetic Resolution**
  X. Wu, Y. Liu, and Z. Jin
- **Organocatalytic Dynamic Kinetic Asymmetric Transformations**
  A. Córdova, K. Zhang, and L. Deiana
- **Chemoenzymatic Dynamic Kinetic Resolution of Amines**
  K. Adriaensen and D. De Vos
- **Chemoenzymatic Dynamic Kinetic Resolution of Alcohols**
  K. Kanomata and S. Akai
- **Applications of Chemoenzymatic Dynamic Kinetic Resolution for the Synthesis of Biologically Active Compounds and Natural Products**
  S. González-Granda and V. Gotor-Fernández
- **Chemoenzymatic Dynamic Kinetic Asymmetric Transformation**
  O. Pàmies
- **Transition-Metal-Catalyzed Dynamic Kinetic Asymmetric Transformations (DYKATs) and Stereoablative Transformations**
  N. J. Hafeman, S. R. Sardini, Jr., V. Bhat, and B. M. Stoltz
- **Applications of Metal-Catalyzed Dynamic Kinetic Resolutions and Dynamic Kinetic Asymmetric Transformations for the Synthesis of Complex Molecules**
  F. W. Goetzke, F. Modicom, and S. P. Fletcher
- **Dynamic Kinetic Resolution in Asymmetric Hydrogenation and Transfer Hydrogenation**
  J.-H. Xie and Q.-L. Zhou
- **Dynamic Kinetic Resolution and Dynamic Kinetic Asymmetric Transformation of Atropisomers**
  J. Berreur, B. S. L. Collins, and J. Clayden

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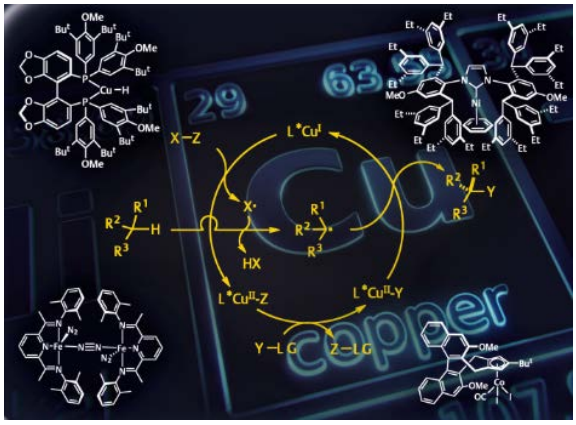
New: Base-Metal Catalysis

Catalysis with Earth-abundant metals, often referred to as base metals, is having a transformative impact on synthetic chemistry. Research in this area is driven not only by the common interest in the sustainability of chemical synthesis but also by the vast opportunity to discover and develop novel reaction chemistry that is not attainable with rare and precious metal catalysts. This work, edited by **Prof. Naohiko Yoshikai**, provides representative developments in base-metal catalysis, specifically catalysis with 3d-transition metals, in a format suitable for practitioners of organic synthesis.

Volume 1, which included in this release, is focused on recent advances in copper and nickel catalysis and contains reviews by some of the leading chemists in the field. Areas covered include Ullmann-type coupling, reductive coupling and cross-coupling reactions, C—H activation and functionalization, and alkene hydrofunctionalization and difunctionalization. Methods for the installation of important functional groups such as trifluoromethyl and carboxyl, and for the aerobic oxidation of alcohols are also covered.

Prof. N. Yoshikai



Reviews include: (titles are clickable links)

- **Modern Ullmann-Type Couplings**
  J. Huang and D. Ma
- **Copper(I) Hydride Catalyzed Transformations**
  T. Xiong and Y. Li
- **Copper-Catalyzed Alkene Difunctionalization**
  S. R. Chemler and J. J. Kennedy-Ellis
- **Copper-Catalyzed C-H Functionalization via Radicals**
  P. Chen and G. Liu
- **Copper-Catalyzed Directed C-H Functionalization**
  H. Xu and H.-X. Dai
- **Copper-Catalyzed Acidic C-H Functionalization**
  Y. Shang, Y. Ren, and W. Su
- **Copper-Catalyzed/Mediated Trifluoromethylation and other Fluoroalkylations**
  Y. Ouyang, J.-Y. Shou, and F.-L. Qing
- **Copper-Catalyzed Aerobic Oxidation of Alcohols**
  Y. Sasano and Y. Iwabuchi
- **Base-Metal-Catalyzed Carboxylation Using Carbon Dioxide**
  T. Fujihara
- **Nickel-Catalyzed Cross-Electrophile Coupling Reactions**
  X.-Z. Shu and X. Pang
- **Nickel-Catalyzed Enantioselective Reductive Cross-Coupling Reactions**
  C. Wang and F. Yang
- **Nickel-Catalyzed Alkene Dicarbofunctionalization**
  B. C. Lee, L. Lin, C. Ko, and M. J. Koh
- **Nickel-Catalyzed Cross Coupling Involving Alkenes**
  S. Zhu
- **Nickel-Catalyzed Directed C-H Functionalization**
  N. Chatani
- **Nickel-Catalyzed Nondirected C-H Functionalization**
  Y. Nakao
- **Nickel-Catalyzed Bond Activation for Functional-Group Shuttling**
  T. Delcaillau and B. Morandi
- **Nickel-Catalyzed Cross Coupling via C-O and C-N Activation**
  T. Yoshida and M. Tobisu

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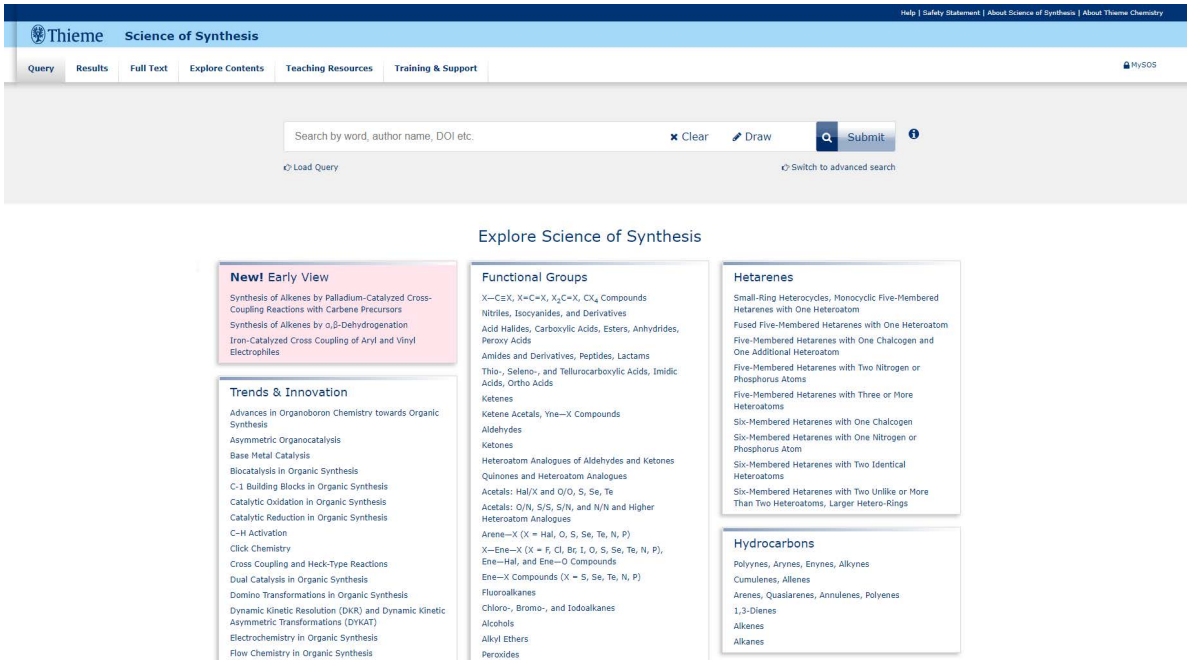
  K. Wang and J. Wang
- **Synthesis of Alkenes by α,β-Dehydrogenation**
  X. Jie and W. Su
- **Iron-Catalyzed Cross Coupling of Aryl and Vinyl Electrophiles**
  R. Nolla-Saltiel and R. B. Bedford



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