



Educational Qualification: M. Sc. Ph. D. (Pt. Ravishanker Shukla University, Raipur (C.G.))

Teaching Experience: 9 Years

Postdoctoral Experience: 4.7 years

Research Projects: 1 ongoing (UGC Start-up 6.0 Lakhs)

Awards/Medals/recognition etc.

Postdoctoral Fellow by Brain Korea 21 program, Korea

Indian Academy of Science, Bangalore Teacher Summer Fellow

Most cited paper awards by Tetrahedron Letters, Elsevier Ltd. Oxford, UK

CSIR, Senior Research Fellow award

UGC, New Delhi Project Fellow

2nd position in merit list at M. Sc.

Publications:

Research Interest: Homo- and Heterogeneous Asymmetric Catalysis, Nanocatalysis, Chiral Ligand, Kinetic Resolution, Biomimetic Oxidation, Hydrolysis.

Research Papers Published: 20

International : 15

National : 05

Book Chapter : 01

Conf. Proceedings: 02

Training Courses and Cof./Seminar/Workshops-

Training Courses/Refresher Course: 03

International Conf. 06 National Conf. 10

Invited lecture for presentations for Conf./Symposia :02

Membership/Fellowship of Professional Societies

-Chemical Research Society of India, Bangalore (Life Member)

-Indian Chemical Society, Kolkata (Life Member)

-Catalyst Society of India, Chennai (Life Member)

-Indian Society for Technical Education (Life Member)

-American Chemical Society (Ex-member for 5 years)

Other Academic/Administrative responsibility:

-Member of board of studies (Chemistry), GGV.

-Worked as a Head of the Department

-Worked as a Centre Superintendent and Observer of Exam.

-Worked as an academic counselor

-I/c Director etc.

- Assistant Warden etc.

-Member of anti-ragging committee

Selected Publication and Research Summary

1. Chen SW, **Thakur SS**, Li W, Shin CK, Koo YM, Kim GJ. Efficient Catalytic Synthesis of Optically Pure 1, 2- Azido Alcohols through Enantioselective Epoxide Ring opening with HN_3 *Journal of Molecular Catalysis A: Chemical* 2006, 259, 116–120.
2. **Thakur SS**, Chen SW, Li W, Shin CK, Koo YM, Kim GJ. Synthesis of Optically Pure Terminal Epoxide and 1, 2-Diol via Hydrolytic Kinetic Resolution Catalyzed by New Heterometallic Salen Complexes *Synthetic Communications* 2006, 36, 2371–2383.
3. **Thakur S S**, Chen SW, Li W, Shin CK, Koo YM, Kim GJ. A New Dinuclear Chiral Salen Complexes for Asymmetric Ring Opening and Closing Reactions: Synthesis of Valuable Chiral Intermediates *Journal of Organometallic Chemistry* 2006, 691, 1862-1872.
4. **Thakur SS**, Li W, Shin CK, Kim GJ. Asymmetric Ring Opening of Terminal Epoxides via Kinetic Resolution Catalyzed by New Bimetallic Chiral (Salen) Co Complex *Chirality* 2006, 18, 37-43.
5. **Thakur SS**, Li W, Kim SJ, Kim GJ. Highly Reactive and Enantioselective Kinetic Resolution of Terminal Epoxides with H_2O and HCl Catalyzed by New Chiral (salen) Co Complex Linked with Al *Tetrahedron Letters* 2005, 46, 2263-2266 (**Published with cover page and received most cited paper award**).

Book Chapter

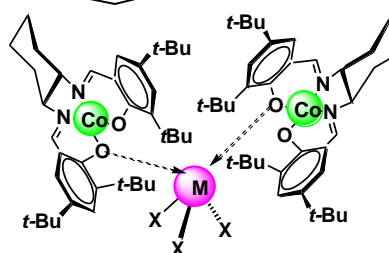
1. Thakur SS, Lee JE, Lee SH, Kim JM, Song CE. Heterogeneous Enantioselective Catalysis Using Inorganic Supports 2'nd Chapter pp. 25-72 in '*Handbook of Asymmetric Heterogeneous Catalysis*' K Ding & Y. Uozumi (Eds.) Wiley-VCH Verlag, Weinheim, Germany First Edition Sept. 2008.

Research Interest

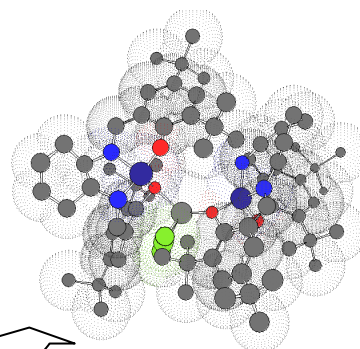
Asymmetric Catalysis, Chirality and Ligands, Biomimetic Oxidation, Homo- and Heterogeneous Catalysis, Mesoporous material and Nanostructured catalyst and Hydrolysis.

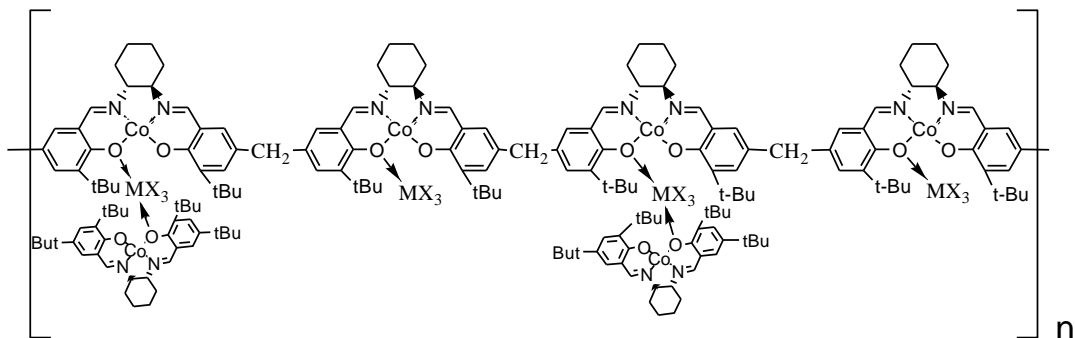
Homogeneous Chiral Catalyst

SS Thakur et al. *Tetrahedron Lett.* 2005, 46, 2263-2266



M = Al, Ga, In, Tl
X = Cl, Br, I

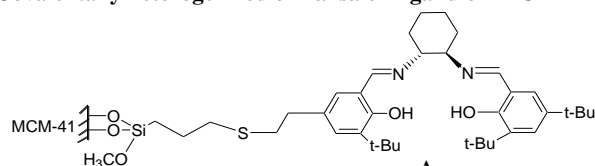




Polymer Chiral Salen(Co)MX₃

Synthesis of Heterogeneous Chiral Catalyst

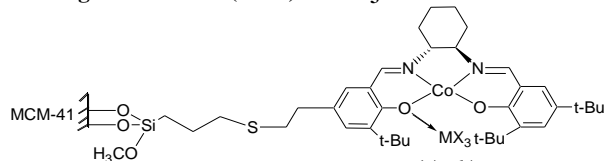
Covalently heterogenized chiral salen ligand on MCM-41



A

1. Co(OAc)₂·4H₂O, EtOH, Reflux
2. Anhydrous MX₃, CH₂Cl₂, 2h

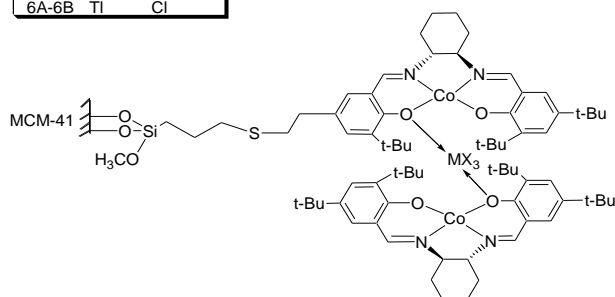
Heterogeneous chiral (salen)Co MX₃ monomers



1A-6A

M	X
1A-2B	Al, Cl, Br
3A-4B	Ga, Cl, NO ₃
5A-5B	In, Cl
6A-6B	Tl, Cl

- Precatalyst Chiral Co (salen)
CH₂Cl₂, 1 h



B

1B-6B

Heterogeneous chiral (salen)Co MX₃ dinuclear complex

Characterized by: XRD, EXAFS, NMR, FAB-Mass FT-IR, VCD, UV-Vis Spectrophotometer.

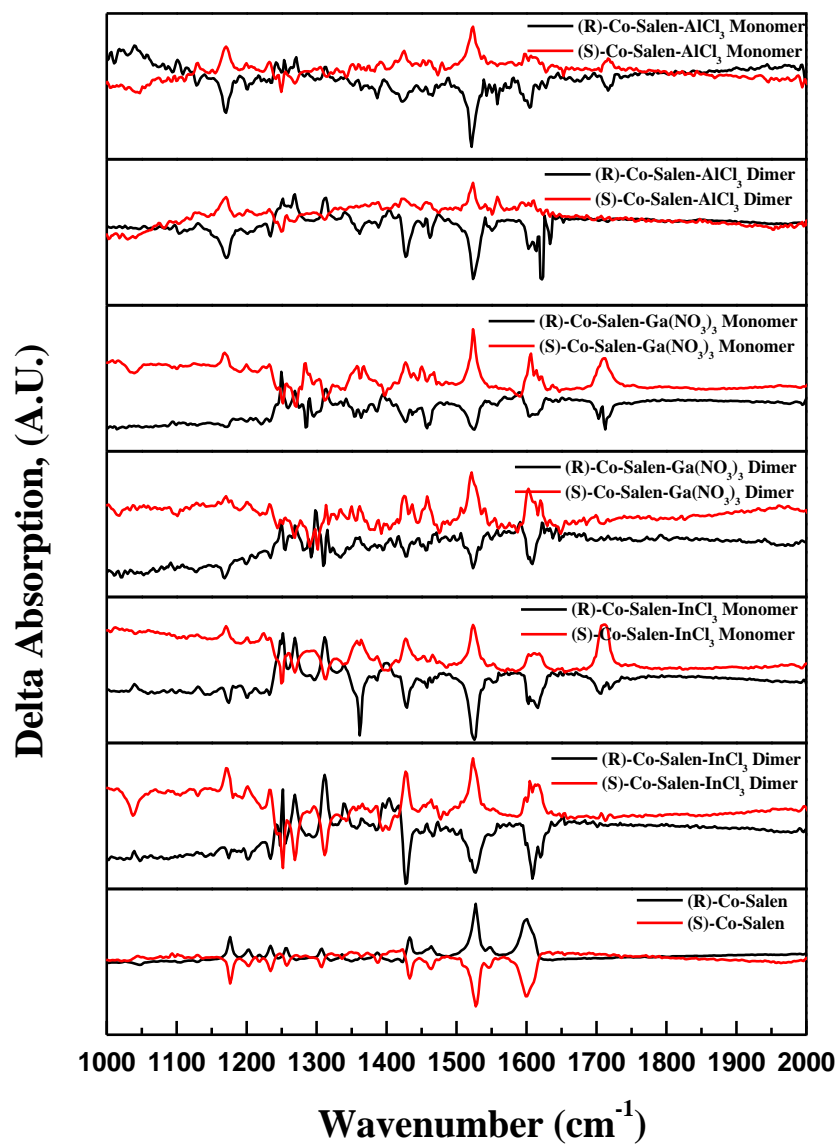
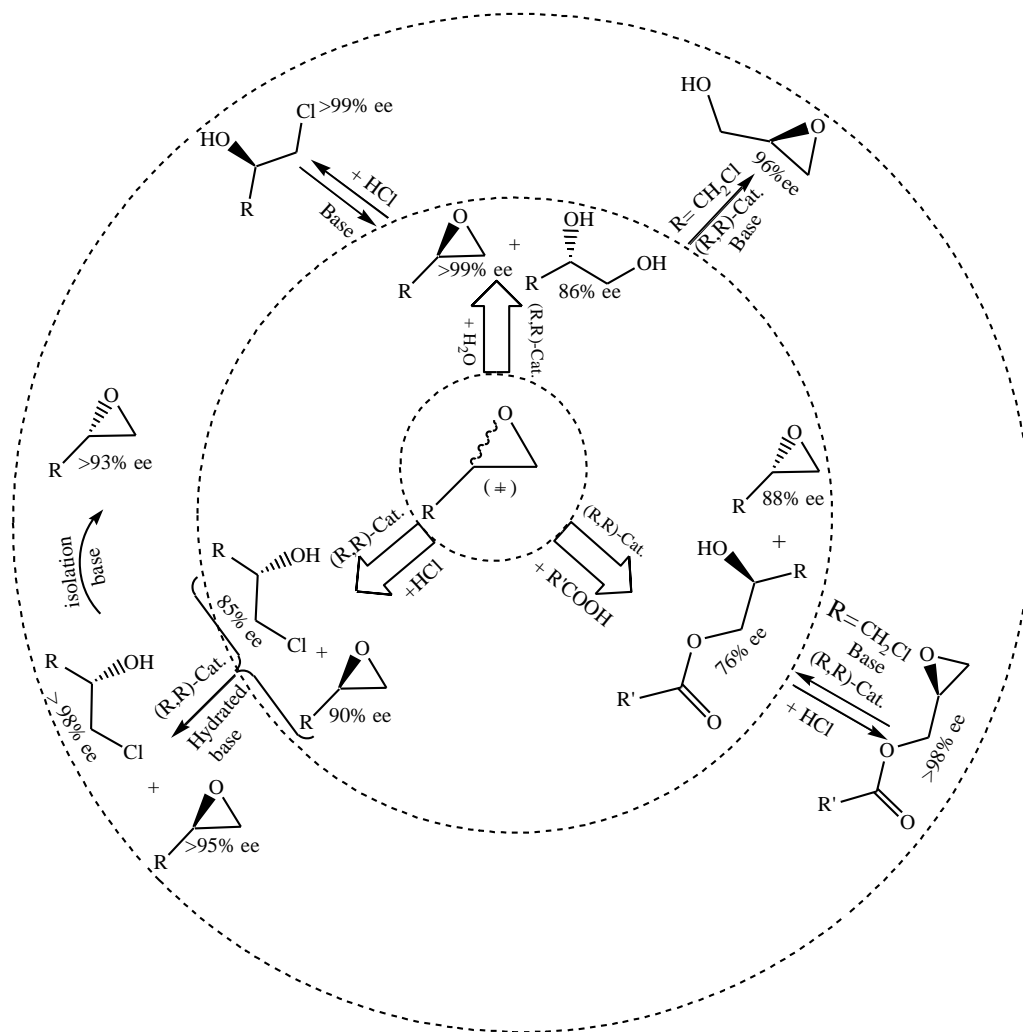


Figure Comparison of Vibrational Circular Dichroism spectra of mono and dinuclear chiral catalysts.

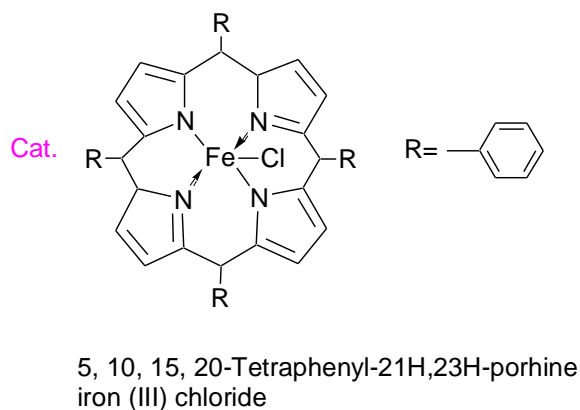
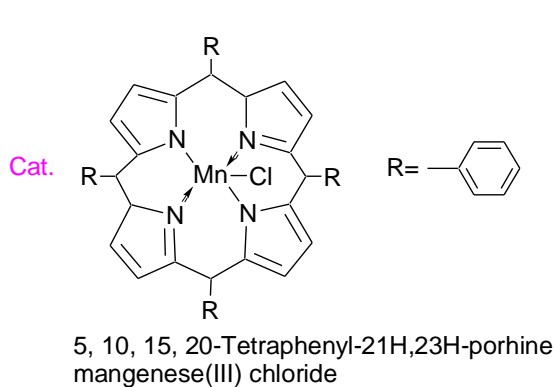
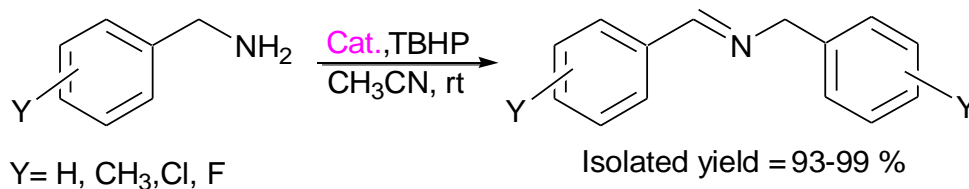
Applications of Homo/Heterogenous Catalyst : Synthesis of Chiral Intermediates



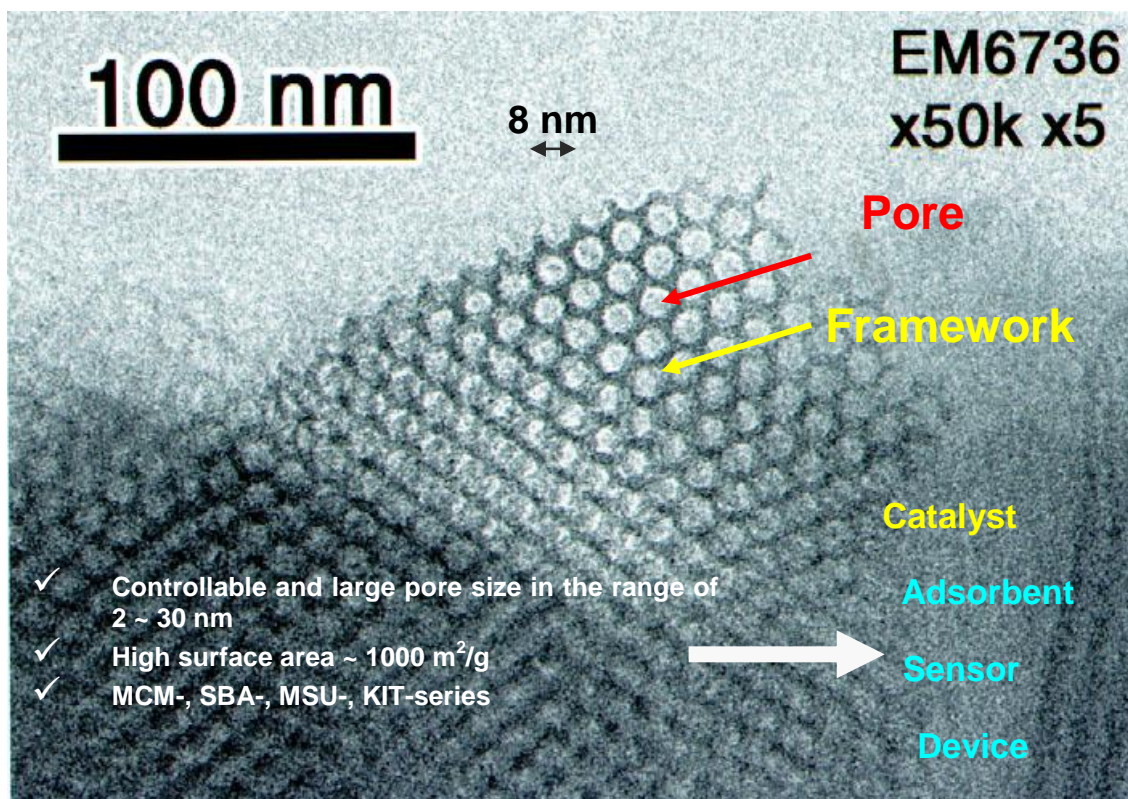
Scheme 1

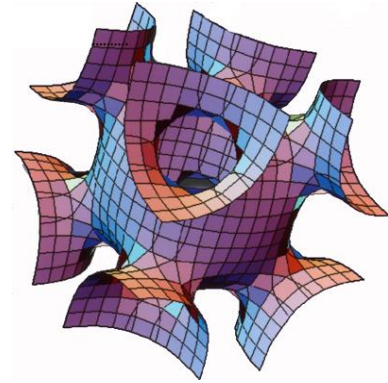
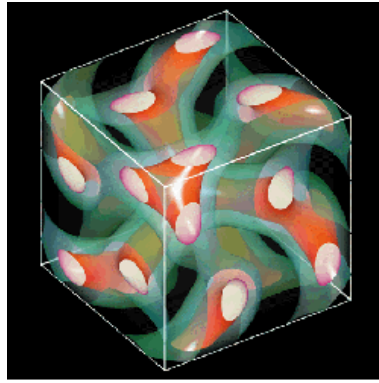
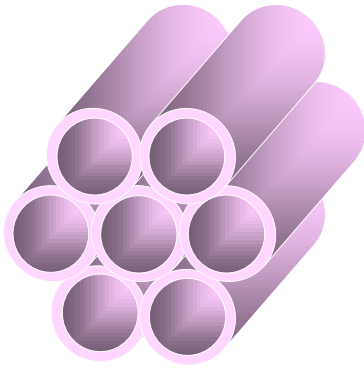
Coupled route for the synthesis of chiral intermediates catalyzed by dinuclear salen complex

Synthesis of N-Benzylbezaldimines and their derivatives from the Oxidation of Benzylamines with t-BuOOH Catalyzed by Mn(TPP)Cl/ Fe(TPP)Cl



Synthesis, Characterization and catalytic applications of Ordered Mesoporous Materials





MCM-41 SBA-15

MCM-48

SBA-16

Preparation of Highly Ordered Mesoporous TiO₂ Materials with Crystalline Framework from Different Mesostructured Silica Templates via Nano-Replication

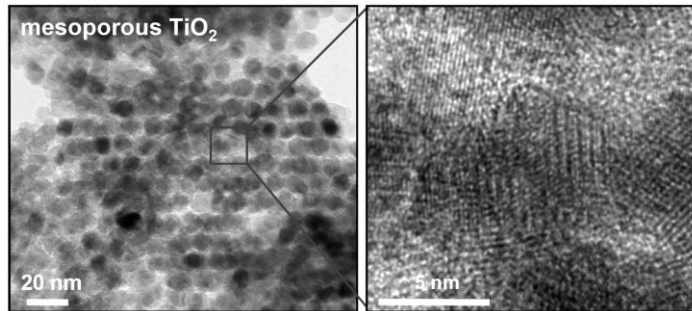


Fig TEM images for the mesoporous TiO₂ materials obtained from mesoporous silica templates.