BIODATA

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Profile:

Educational and Professional

1990-1992:	(M.Sc., Chemistry) from Sambalpur University
1993-1998:	(Ph.D., Chemistry) JRF and SRF at IIT Kanpur
Dec 1998 - May 2000:	AvH Fellow, Universitaet des Saarlandes, Germany
Aug 2000- March 2002:	JSPS Research Fellow, Nagoya University, Japan
April 2002- August 2002:	JSPS Research Fellow, The University of Tokyo
Sep 2002 - March 2003:	Research Associate at The University of Tokyo
March 2003- Present:	Assistant Professor, Dept of Chemistry, IIT Madras

Membership

Chemical Research Society of India (CRSI)

India Association of Chemistry Teachers (IACT)

Orissa Chemical Society (OCS)

Awards and Honors

1992 First Class First in M. Sc. Chemistry, Sambalpur University, India

1993 Junior Research Fellowship, IIT Kanpur, India

1996 Senior Research Fellowship, CSIR, New Delhi, India

1998 Alexander von Humboldt Fellowship, Bonn, Germany

2000 JSPS Postdoctoral Fellowship, JSPS, Tokyo, Japan

2003 RC Tripathy Young Scientist Award, OCS, Orissa, India

Research Interest

Area of Research: Supramolecular Inorganic Chemistry,
Homogeneous Catalysis

Research Output

(1) Peer reviewed journal articles (25):

h index = 12 i.e. 12 out of 25 documents have each been cited (self citations not counted)at least 12 times

Appl. Organometal. Chem. (1); Chem. Asian. J. (1); Chem. Commun. (2); Chem. Eur. J. (2); Dalton Trans. (2); Eur. J. Inorg. Chem. (1); Inorg. Chem. (3); Inorg. Chim. Acta (2); J. Mol. Catal. A: Chem. (1); J. Org. Chem. (1); Proc. Ind. Acad. Sci. (Chem. Sci.) (1); Synthesis (1);Tetrahedron (3); Tetrahedron Lett. (4).

(2) Book Chapters/Monographs(2);
International conference/symposium/seminar(7);
Bilateral conference/symposium/ seminar(1);
National conference/symposium/seminar(18);
ACS Abstract paper (1);

Research Guidance

PhD: Five students are working for PhD degree.

MSc: Four students finished project work and two are working for MSc degree.

Short term Fellow: Three undergraduate students worked.

Research Projects at IIT Madras

(1) Starting grant (New Faculty Scheme)

Title:

Agency:(IIT Madras, India)

Duration:(Nov 2003-Oct 2005)

Amount: Rs. 5,00,000

Publications acknowledged:

(1) J. Mol. Catal. A: Chem., 255, 275-282, (2006).

(2) Sponsored project

Title: Metal Driven Self-assembly Coordination cages via modular approach

Agency:(DST, India)

Duration:(April 2004-Oct 2007)

Amount: Rs. 15,50,000

Publications acknowledged:

(1) Eur. J. Inorg. Chem., 3346-3352, (2005); (2) Tetrahedron Lett., 47, 2867-2869, (2006); (3)Tetrahedron Lett., 47, 4573-4576, (2006); (4)Appl. Organometal. Chem., 20, 840-844,(2006); (5)Inorg. Chim. Acta , 360, 31-38,(2007); (6)Tetrahedron Lett., 48, 761-765,(2007); (7)"Achievements in Coordination, Bioinorganic and Applied Inorganic Chemistry"(STU Press), pp. 55-65 (2007)

(3) Sponsored Project

Title: Molybdenum-based Catalysts for Organic Transformations

Agency:(CSIR, India)

Duration:(May 2007-May 2010)

Amount: Rs. 11,46,000

Publications: Work in progress

(4) Consultancy Project

One consultancy project (running) confidential in nature

Peer activities

(1) Reviewer of

(i) Journals:
- Journal of Chemical Sciences (six)
- Applied Organometallic Chemistry (one)
- Tetrahedron (one)
- South African Journal of Chemistry(one)

(ii) Sponsored projects:
- CSIR, India (one)
- DST, India (one)
- DRDO, India (one)

(2) Secretary Humboldt Club Chennai, India since 2007

(3) Co-convener of the symposium: 12th Biennial symposium on **Modern Trends in Inorganic Chemistry**, MTIC-XII, 6-8 Dec, 2007 at IIT Madras, Chennai

Teaching activities

Courses Taught: Varieties

B Tech

(i)CY101: Microscopic and Macroscopic Structure of Chemical Systems

(ii)CY102: Chemistry II

(iii)CY201: Organic Chemistry - Basic Principles

(iv)CY103: Chemistry Lab-I

M Sc

(i)CY502: Concepts in Inorganic Chemistry

(ii)CY553: Chemistry of Main Group Elements

(iii) CY556: Chemistry of Transition Metals

(iv)CY561: Inorganic Chemistry Practicals I

(v)CY611: Inorganic Chemistry Practicals II

Preparatory

(i)CYPCT: Preparatory Course Theory I

(i)CYPCT: Preparatory Course Theory II

(ii)CYPCL: Preparatory Course Lab I

List of Publications

Refereed International Journals

1. Synthesis of Heteroploytopic Cryptands Incorporating Hard and Soft Donor Atoms Via Tripod-Tripod Schiff Base Condensation: Versatile Ligannds for Transition Metal Ions, *(Article)*
   P. Ghosh, R.Shukla, **D. K. Chand** and P. K. Bharadwaj,
   Tetrahedron, 51, 3265-3270 (1995)
2. Tetrahedral Recognition of a Water Molecule by Heteroditopic Cryptands: X-ray Structural Studies, *(Note)*
   D. K. Chand, K Ragunathan, T. C. W. Mak and P. K. Bharadwaj,
   J. Org. Chem., 61, 1169-1171 (1996)
3. Synthesis of a Heteroditopic Cryptand Capable of Imposing a Distorted Coordination Geometry onto Cu(II): Crystal Structures of the Cryptand L, [Cu(L)(CN)](picrate) and [Cu(L)(NCS)](picrate), and Spectroscopic Studies of the Cu(II) Complexes, *(Article)*
   D. K. Chand and P. K. Bharadwaj,
   Inorg. Chem, 35, 3380-3386 (1996)
4. Size Mismatch Between Two Tripodal Units: A New Synthetic Strategy for Macrotricyclic Cryptand, *(Communication)*
   D. K. Chand and P. K. Bharadwaj,
   Tetrahedron Lett., 37, 8443-1446 (1996)
5. Synthesis of Designed Hetero-Polytopic Cryptands Through Schiff Base Condensation, *(Article)*
   D. K. Chand and P. K. Bharadwaj,
   Tetrahedron, 53, 10517-10522 (1997)
6. A Co(II)-Cryptate of a Heteroditopic Cryptand L as an Efficient Oxygenation Catalyst of Organic Substrates Using Molecular Oxygen and 2-Methylpropanal *(Note)*
   D. K. Chand and P. K. Bharadwaj,
   Inorg. Chem., 36, 5658-5661 (1997)
7. Heteroditopic Cryptands of Tunable Cavity Size: Imposition of Distorted Geometry onto Copper(II) and Nickel(II) and Molecular Recognition of Water Molecules, *(Article)*
   D. K. Chand and P. K. Bharadwaj,
   Inorg. Chem., 37, 5050-5054 (1998)
8. Affinity and Nuclease Activity of Macrocyclic Polyamines and their Cu(II) Complexes *(Article)*
   D. K. Chand, H.-J. Schneider, A. Bencini, A. Bianchi, C. Giorgi, S. Ciattini and B. Valtancoli
   Chem. Eur. J., *6*, 4001-4008, (2000)
9. Copper Complexes of Polyaza[n]cyclophanes and their Interaction with DNA and RNA *(Article)*
   D. K. Chand, H.-J. Schneider, J. A. Aguilar, F. Escarti and E. Garcia-Espana and S. V. Luis
   Inorg. Chim. Acta, 316, 71-78 (2001)

10. Cryptands and related tripodal ligands: interaction with nucleic acids and nuclease activity of their Eu(III) complexes *(Article)*

    D. K. Chand, P. K. Bharadwaj and H.-J. Schneider
    Tetrahedron, *57*, 6727-6732, (2001)
11. Self-Assembly of a Novel Macrotricyclic Pd(II) Metallocage Encapsulating a Nitrate Ion *(Communication)*

    D. K. Chand, K. Biradha and M. Fujita
    Chem. Commun., 1652-1653, (2001)
12. DOSY Study on Dynamic Catenation: Self-Assembly of a [3]Catenane as a Meta-Stable Compound from Twelve Simple Components *(Article)*

    A. Hori, K. Kumazawa, T. Kusukawa, **D. K. Chand**, M. Fujita, S. Sakamoto, and K. Yamaguchi
    Chem. Eur. J., *7*, 4142-4149, (2001)

13. A Molecular Sphere of Octahedral Symmetry *(Communication)*

    D. K. Chand, K. Biradha, M. Fujita, S. Sakamoto and K. Yamaguchi
    Chem. Commun., 2486-2487, (2002)
14. Proton and Cu(II) Binding to Tren-Based Tris-Macrocycles: Affinity to Nucleic Acids and Nuclease Activity *(Article)*

    A. Bencini, E. Berni, A. Bianchi, C. Giorgi, B. Valtancoli,
    D. K. Chand, H.-J. Schneider
    Dalton Trans., 793-800, (2003)
15. Metal Driven Self aasembly of Pyridine Appended Ligands with Cis-protected/Naked Pd(II) Ion: A Comparative Study *(Article)*

    D. K. Chand, M. Fujita, K. Biradha, S. Sakamoto and K. Yamaguchi
    Dalton Trans., 2750-2756, (2003)
16. Self-assembly by Ligand Exchange Reactions *(Article)*

    D. K. Chand, R. Manivannan, H. S. Sahoo and K. Jeyakumar
    Eur. J. Inorg Chem., 3346-3352, (2005)
17. A New Class of Self-Assembly Multinuclear Pt(II) Coordination Cages by a Modular Approach *(Communication)*

    D. K. Chand, G. Balaji, R. Manivannan, J. Athilakshmi
    Tetrahedron Lett., *47*, 2867-2869, (2006)
18. Selective Oxidation of Sulfides to Sulfoxides and Sulfones at Room Temperature using H_2O_2 and a Mo(VI) Salt as Catalyst *(Communication)*

    K. Jeyakumar and **D. K. Chand**
    Tetrahedron Lett., *47*, 4573-4576, (2006)
19. Copper perchlorate: Efficient acetylation catalyst under solvent free conditions *(Article)*

    K. Jeyakumar and **D. K. Chand**
    J. Mol. Catal. A: Chem., *255*, 275-282, (2006)
20. Dynamic Self-assembly of an M_3L_6 Molecular Triangle and an M_4L_8 Tetrahedron from Naked Pd^{II} Ions and bis(3-pyridyl)Substituted Arenes *(Article)*

    D. K. Chand, K. Biradha, M. Kawano, S. Sakamoto, K. Yamaguchi and M. Fujita
    Chem. Asian J., *1*, 82-90, (2006)
21. Aerobic Oxidation of Benzyl Alcohols by Mo^{VI} Compounds *(Article)*

    K. Jeyakumar and **D. K. Chand**

Appl. Organometal. Chem., *20*, 840-844, (2006)

22. Influence of *cis*-Protecting Groups Toward Ligand Exchange Reactions in Polynuclear Pd(II)-based Coordination Cages *(Article)*
    H. S. Sahoo, **D. K. Chand** and N. B. Debata
    Inorg. Chim. Acta, *360*, 31-38, (2007)
23. Manifestation of Diamagnetic Chemical Shifts of proton NMR Signals by Anisotropic Shielding Effect of Nitrate Anions"*(Communication)*
    H. S. Sahoo, **D. K. Chand**, S Mahalakshmi, Md H Mir and R Raghunathan
    Inorg. Chim. Acta, *360*, 31-38, (2007)
24. Ring Opening Reactions of Epoxides Catalyzed by MoO_2Cl_2 *(Article)*
    K. Jeyakumar and **D. K. Chand**
    Synthesis, 000-000, (2008)

Refereed National Journal

25. Synthesis and uses of Macrobicyclic Cryptands: From Complexation of Transition Metal Ions to Molecular Devices, *(Article)*
    D. K. Chand, P. Ghosh, R. Shukla, S. Sengupta, G. Das and P. Bandyopadhyay and P. K. Bharadwaj,
    Proc. Ind. Acad. Sci. (Chem Sci.), 108, 229-231 (1996)(1+4)

Refereed Book Chapters:

1) "Extraction of Pertechnate and Perrehnate by Aza Cages"
   H. Stephan, K. Gloe, W. Kraus, H. Spies, B. Johannsen, K. Wichmann, **D. K. Chand**, P. K. Bharadwaj, U. Muller, W. M. Muller, and F. Vogtle
   In *"Fundamentals and Applications of Anion Separations"*, B A Moyer and R P Singh, Eds. Springer-Verlag, pp.151-168, (2004). ISBN: 0-306-47911-7 .

2) "Ligand Exchange Reactions Around Palladium(II)Ions in Mononuclear Complexes Generated from a Meta-substituted Pyridine Ligand"
   N. B. Debata, **D. K. Chand** and H. S. Sahoo
   In"Achievements in Coordination, Bioinorganic and Applied Inorganic Chemistry", M. Melnik, J. Sima and M. Tatarko, Slovak Technical University Press, pp. 55-65 (2007). ISBN: 978-80-227-2647-4, ISSN: 1335-308X
   {Zero} .

Abstract Papers:

1) "Binding and Transport of Oxyanionn by Dendrimers and Cryptands"
   H. Stephan, H. Spies, B. Johannsen, K. Wichmann, T. Rambusch, K. Gloe, **D. K. Chand**, P. K. Bharadwaj, and F. Vogtle
   Abstr. Pap. Am. Chem. S., 222: U508-U509 Part 1 AUG , (2001).

Poster/Paper Presented in Conference/Symposium/Seminar

International Conference/Symposium:

1) "A Heteroditopic Cryptand: Complexation of Cu(II) and Molecular Recognition of Water Dimer,"**(Poster)**
D. K. Chand and P. K. Bharadwaj
XXIV International Symposium on Macrocyclic Chemistry, 18-23 July 1999, Barcelona, Spain.

2) "Self-Assembly of a Novel Macrocyclic Pd(II) Metallocage Encapsulating Nitrate Ion"**(Poster)**
D. K. Chand, K. Biradha and M. Fujita
XXVI International Symposium on Macrocyclic Chemistry, 15-20 July 2001, Fukuoka, Japan.

3) "Binding and Extraction of Oxyanions by Dendrimers and Cryptands"**(Poster)**
K. Gloe, M. Grotjahn, T. Rambusch, K. Wichmann, B. Johannsen, H. Spies, H. Stephan, P. K. Bharadwaj, **D. K. Chand**, M. Gorka, W. M. Müller, F. Vögtle
XXVI International Symposium on Macrocyclic Chemistry, 15-20 July 2001, Fukuoka, Japan.

4) "Self-assembly and Ligand Exchange Reactions Around Pd(II)"**(Invited Talk)**
D. K. Chand
Singapore International Chemical Conference-4(SICC-4) , 8-10 Dec 2005, Singapore.

5) "Ligand Exchange Reactions Around Palladium(II)Ions of Some Coordination assemblies"**(Invited Talk)**
D. K. Chand, N. B. Debata and H. S. Sahoo
XXI. International Conference on Coordination and Bioinorganic Chemistry, 3-8 June 2007, Smolenice Castle, Bratislava, Slovakia.

6) "cis-Dioxomolybdenum(VI)-based Catalysts for Oxidation Reactions"**(Poster)**
K. Jeyakumar and **D. K. Chand**
Eigth Tetrahedron Symposium, Challenges in Organic Chemistry, 26-29 June 2007, Berlin, Germany.

7) "Role of a Macrocyclic Ligand in Chain Like Arrangement of Palladium Nanoparticles" **(Contributed Talk)**
J Athilakshmi, S Ramanathan and **D. K Chand**
10th International Conference on Advanced materials, 8-13 October 2007, Bangalore, India.

Bilateral Conference/Symposium

1**)** "Observation of Scrambling reactions at Palladium(II) Centers: Ligand Influence and NMR Studies"(**Invited Talk**)
R Manivannan, **D. K. Chand**, and H. S. Sahoo
Singapore-India Collaborative and Cooperative Chemistry Symposium (SInCCCS-3) , 16-18 Dec 2004, IIT Kanpur, India.

National Conference/Symposium

1) "Molecular recognition by a heteroditopic cryptand: synthesis and X-ray crystal structural study of the water inclusion complex"
D. K. Chand and P. K. Bharadwaj**(Invited Talk)**
XXVI National Seminar on Crystallography 16 – 18 January 1995, University of Mysore, India.

2) "Synthesis and Characterization of Cu(II) and Ni(II) complexes with Heteroditopic Cryptands: Crystal Structure of a Strongly Bonded Cu(II)-OH_2 Inclusion Complex"
G. Das, **D. K. Chand** and P. K. Bharadwaj**(Poster)**
Modern Trends in Inorganic Chemistry-VII, 4-6 Dec 1997, IIT Kanpur, India.

3) "Self-assembly of Novel Pd(II) Metallocages"
D. K. Chand, K. Biradha and M. Fujita**(Poster)**
51st National Coordination Chemistry Conference, 28-30 Sep 2001, Matsue, Japan.

4) "A Molecular Sphere"
D. K. Chand and M. Fujita**(Poster)**
Modern Trends in Inorganic Chemistry-X, 15-17 Dec 2003, IIT Bombay, India.

5) "Self-assembly by Ligand Exchange Reactions around Pd(II)-Part I"
H. S. Sahoo, K. Jeyakumar and **D. K. Chand (Poster)**
Modern Trends in Inorganic Chemistry-XI, 8-10 Dec 2005, IIT Delhi, India.

6) "Self-assembly by Ligand Exchange Reactions around Pd(II)-Part II"
K. Jeyakumar, H. S. Sahoo and **D. K. Chand (Poster)**
Modern Trends in Inorganic Chemistry-XI, 8-10 Dec 2005, IIT Delhi, India.

7) "Self-assembly Pd(II) and Pt(II) Coordination Cages"
D. K. Chand (Invited Talk)
National Symposium on New Challenges in Chemistry, 20-21 March 2006, GNDU Amritsar, India.

8) "A New Class of Self-Assembly Multinuclear Pt(II) Coordination Cages by a Modular Approach"
J. Athilakshmi and **D. K. Chand (Poster)**
Annual IIT Madras Chemistry Symposium & the First Mid-year Meeting of the Chemical Research Society of India, 12-13 July 2006, IIT Madras, India.

9) "Influence of cis-Protecting Groups Toward Ligand Exchange Reactions in Polynuclear Pd(II)-based Coordination Cages"
N. B. Debata and **D. K. Chand (Poster)**
Annual IIT Madras Chemistry Symposium & the First Mid-year Meeting of the Chemical Research Society of India, 12-13 July 2006, IIT Madras, India.

10) "Self-assembly by Ligand Exchange Reactions around Pd(II)"
H. S. Sahoo and **D. K. Chand (Poster)**
Annual IIT Madras Chemistry Symposium & the First Mid-year Meeting of the Chemical Research Society of India, 12-13 July 2006, IIT Madras, India.

11) "cis-Dioxomolybdenum(VI)-based Catalysts for Oxidation Reactions"
K. Jeyakumar and **D. K. Chand (Poster)**
Annual IIT Madras Chemistry Symposium & the First Mid-year Meeting of the Chemical Research Society of India, 12-13 July 2006, IIT Madras, India.

12) "Chemical Nucleases"
D. K. Chand (Invited Talk)
National Seminar on Bioinorganic Chemistry, 18-19 August 2006, PWC Calicut, India.

13) "Ligand Exchange Reactions around Pd(II): Influence of cis-protection"
D. K. Chand (Invited Talk)
National Symposium on Advances in Chemistry and Environmental Impact, 2-3 November 2006, NEHU Shillong, India.

14) "Organometallic Compounds of the Transition Metals: from Basic Concepts to Homogeneous Catalysis (Part-I)"
D. K. Chand (Invited Talk)
Orientation Programme on Catalysis (for Research Scholars), November-December 2006, IIT Madras, India.

15) "Organometallic Compounds of the Transition Metals: from Basic Concepts to Homogeneous Catalysis (Part-II)"
D. K. Chand (Invited Talk)
Orientation Programme on Catalysis (for Research Scholars), November-December 2006, IIT Madras, India.

16) "Self-assembly by Ligand Exchange Reactions around Pd(II)-Part III"
N. B. Debata, H. S. Sahoo and **D. K. Chand (Poster)**
Modern Trends in Inorganic Chemistry-XII, 6 - 8 Dec 2007, IIT Madras, India.

17) "Self-assembly by Ligand Exchange Reactions around Pd(II)-Part III"
N. B. Debata, H. S. Sahoo and **D. K. Chand (Presentation)**
Modern Trends in Inorganic Chemistry-XII, 6 - 8 Dec 2007, IIT Madras, India.

18) "Application of Molybdenum Oxychloride in Homogeneous Catalysis"
K. Jeyakumar and **D. K. Chand (Poster)**
Modern Trends in Inorganic Chemistry-XII, 6 - 8 Dec 2007, IIT Madras, India.