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## Curriculum Vitae

**Jeetender Chugh, Ph.D.**

(Current as of April 2015)

***Personal Details***

Full Name: Dr. Jeetender Chugh; Born on: March 17<sup>th</sup>, 1980; Place of Birth: New Delhi, India; Indian National; Male; S/o Mr. Satish Kumar Chugh and Mrs. Sushma Rani Chugh; Married to Dr. Shilpy Sharma

***Education***

- **2002-2008**  
Ph.D. (Chemistry), Department of Chemical Sciences, Tata Institute of Fundamental Research (TIFR), Mumbai, India  
  
Thesis title : *NMR in Proteomics: Investigations on Large Protein Assemblies and Method Developments*  
Supervisor : Prof. Ramakrishna V. Hosur
- **2000-2002**  
M.Sc. (Chemistry) Organic Chemistry as specialization from Hans Raj College, Department of Chemistry, University of Delhi with 67.1% (Aggregate)
- **1997-2000**  
B.Sc. (H) Chemistry from Hans Raj College, University of Delhi with 62.67% (Aggregate) Subjects: Organic Chemistry, Inorganic Chemistry, Physical Chemistry, Physics, Mathematics, Environmental Chemistry, and Entrepreneurship
- **1996-1997**  
Class XII from CBSE Board with 78.6% (Aggregate) Subjects: Physics, Chemistry, Mathematics, Biology, and English
- **1994-1995**  
Class X from CBSE Board with 81.4% (Aggregate) Subjects: Science, Mathematics, English, Sanskrit, and Social Science

***Professional Experience***

- **March 2013-present**

Assistant Professor in Department of Chemistry at Indian Institute of Science Education and Research, Pune, India

- **2008-2012**  
Worked as a 'Post-Doctoral Fellow' with Prof. Hashim M Al-Hashimi at LSA Biophysics, University of Michigan, Ann Arbor, MI, USA.
- **June 2011-Aug 2011**  
Appointed as 'LEO Lecturer I' to teach Biophysics 450 course for spring/summer semester of 2011 at University of Michigan, Ann Arbor, MI, USA.
- **Aug 2008-Sep 2008**  
Worked as a 'Visiting Fellow' with Prof. R. V. Hosur at Department of Chemical Sciences, TIFR, Mumbai, India.

### **Publications**

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‡Corresponding Author

#### **Articles In Books**

2. **Jeetender Chugh**‡  
*Determining Transient Nucleic Acid Structures by NMR*  
**Chemical Biology of Nucleic Acids: Fundamentals and Clinical**; Springer 2014, 181-198, edited by Volker A. Erdmann, Wojciech T. Markiewicz and Jan Barciszewski
1. Ramakrishna V Hosur‡ and **Jeetender Chugh**  
*NMR of large protein assemblies*  
**Future Directions of NMR (INSA Platinum Jubilee Volume)**; Springer 2009, edited by Prof. C. L. Kheterpal, Prof. Anil Kumar and Prof. K. V. Ramanathan

#### **Conference Abstracts In Journals**

3. **Jeetender Chugh** (Presenting Author)  
*Visualizing Transient Structures in A-site RNA of the Ribosome: New Structures of Known Molecules for Drug Target*  
**Journal of Proteins and Proteomics**; 2015, 6(1), JPP10
2. Hashim M Al-Hashimi (Presenting Author), Katja Petzold, **Jeetender Chugh**, Anthony M Mustoe, Elizabeth A Dethoff and Charlie Brooks III  
*Visualizing Predictive Understanding of RNA Dynamic Behavior: Bringing Order to Disorder*  
**The FASEB Journal**; 2013, 27(96.1)
1. **Jeetender Chugh** (Presenting Author), Anette Casiano-Negrone and Hashim M Al-Hashimi‡ *NMR Dissection of the Detailed Mechanism for Antibiotic Binding to A-site RNA*  
**Biophysical Journal**; 2011, 100(3), Supplemental 1, 603a (Abstract)

#### **Articles in Peer-reviewed Journals**

21. Arvind K Gupta, Ashok Yadav, Anant K Srivastava, Kormathmadam R Ramya, Harshad Paithankar, Shyamapada Nandi, **Jeetender Chugh**‡, Ramamoorthy Boomishankar‡  
*A Neutral Cluster Cage with a Tetrahedral [Pd<sup>II</sup><sub>12</sub>L<sub>6</sub>] Framework: Crystal Structures and Host-Guest Studies*

- Inorganic Chemistry**; 2015, 54(7), 3196-3202 (One of the Top 20 most downloaded articles of the month)
20. Xiancheng Zeng, **Jeetender Chugh**, Anette Casiano, Hashim M Al-Hashimi<sup>‡</sup>, Charlie Brooks III<sup>‡</sup>  
*Visualizing Transient Low Populated Structures of RNA*  
**Journal of Molecular Biology**; 2014, 426(19), 3201-3213
  19. Elizabeth A Dethoff\*, Katja Petzold\*, **Jeetender Chugh\***, Anette Casiano, and Hashim M Al-Hashimi<sup>‡</sup>  
*Visualizing Transient Low Populated Structures of RNA*  
**Nature**; 2012, 491(7426), 724-728 (Featured as News of the Week in C&EN; 2012, 90(42), 10)  
\*Authors contributed equally
  18. Elizabeth A Dethoff\*, **Jeetender Chugh\***, Anthony M Mustoe and Hashim M Al-Hashimi<sup>‡</sup> *Functional Complexity and Regulation through RNA Dynamics*  
**Nature**; 2012, 482(7385), 322-330 (Featured as an Insight Article)  
\*Authors contributed equally
  17. Jameson R Bothe, Evgenia N Nikolova, Catherine D Eichhorn, **Jeetender Chugh**, Alexandar L. Hansen, and Hashim M. Al-Hashimi<sup>‡</sup> *Solution-state NMR Methods for Characterizing the RNA Dynamic Structure Landscape at Atomic Resolution*  
**Nature Methods**; 2011, 8(11), 919-931
  16. Benjamin C Buer, **Jeetender Chugh**, Hashim M Al-Hashimi and E Neil G Marsh<sup>‡</sup> *Using fluorine NMR to probe the interaction of membrane-active peptides with the lipid bilayer*  
**Biochemistry**; 2010, 49(27), 5760-5765
  15. Ramakrishna V Hosur<sup>‡</sup> and **Jeetender Chugh** *NMR advances towards the structural characterization of large protein assemblies*  
**Journal of Indian Chemical Society**; 2010, 87, 53-63
  14. Dinesh Kumar\*, **Jeetender Chugh\*** and Ramakrishna V Hosur<sup>‡</sup> *Generation of Ser/Thr check points in HN(C)N spectra*  
**Journal of Chemical Sciences (Indian Academy of Sciences)**; 2009, 121(6), 955-964  
\*Authors contributed equally
  13. Dinesh Kumar\*, Jyoti R Misra\*, Ashutosh Kumar, **Jeetender Chugh**, Shilpy Sharma and Ramakrishna V Hosur<sup>‡</sup> *NMR Derived Solution Structure of SUMO from Drosophila melanogaster (dSmt3)*  
**Proteins: Structure, Functions and Bioinformatics**; 2009, 75(4), 1046-1050  
\*Authors contributed equally
  12. Dinesh Kumar, **Jeetender Chugh**, Shilpy Sharma and Ramakrishna V Hosur<sup>‡</sup> *Conserved structural and dynamics features in the denatured states of drosophila SUMO, human SUMO and Ubiquitin proteins: implications to sequence-folding paradigm*  
**Proteins: Structure, Function and Bioinformatics**; 2009, 76(2), 387-402
  11. **Jeetender Chugh\***, Shilpy Sharma\* and Ramakrishna V Hosur<sup>‡</sup> *Comparison of NMR structural and dynamics featured of urea and guanidine-denatured states of GED*  
**Archives of Biochemistry and Biophysics**; 2009, 481(2), 169-176  
\*Authors contributed equally
  10. **Jeetender Chugh\***, Shilpy Sharma\*, Dinesh Kumar and Ramakrishna V Hosur<sup>‡</sup> *<sup>1</sup>H, <sup>15</sup>N, <sup>13</sup>C resonance assignment of 9.7 M urea-denatured state of the GTPase effector domain (GED) of dynamin*  
**Biomolecular NMR Assignments**; 2009, 3(1), 13-16

\*Authors contributed equally

9. **Jeetender Chugh\***, Shilpy Sharma\* and Ramakrishna V Hosur<sup>†</sup> *Equilibrium Refolding Transitions driven by TFE and by Gdn-HCl dilution are similar in GED: Implications to Sequence Self-Association Paradigm* **Biochemistry**; 2008, 47(49), 12945-12953  
\*Authors contributed equally
8. **Jeetender Chugh** and Ramakrishna V Hosur<sup>†</sup> *Spectroscopic labeling of A, S/T in the <sup>1</sup>H-<sup>15</sup>N HSQC spectrum of uniformly (<sup>15</sup>N-<sup>13</sup>C) labeled proteins* **Journal of Magnetic Resonance**; 2008, 194(2), 289-294
7. **Jeetender Chugh\***, Shilpy Sharma\*, Dinesh Kumar, Jyoti R Misra and Ramakrishna V Hosur<sup>†</sup> *Effect of a single point mutation on the stability, residual structure and dynamics in the denatured state of GED: relevance to self-assembly* **Biophysical Chemistry**; 2008, 137(1), 13-18  
\*Authors contributed equally
6. **Jeetender Chugh**, Shilpy Sharma and Ramakrishna V Hosur<sup>†</sup> *NMR Insights into a megadalton-sized Protein Self-Assembly* **Protein Science (Accelerated Communication)**; 2008, 17(8), 1319-1325
5. **Jeetender Chugh**, Dinesh Kumar and Ramakrishna V Hosur<sup>†</sup> *Tuning the HNN Experiment: Generation of Serine-Threonine check points* **Journal of Biomolecular NMR**; 2008, 40(2), 145-152
4. Dinesh Kumar, Ashutosh Kumar, Jyoti Ranjan Misra, **Jeetender Chugh**, Shilpy Sharma and Ramakrishna V Hosur<sup>†</sup> *<sup>1</sup>H, <sup>15</sup>N, <sup>13</sup>C resonance assignments of folded and 8 M urea-denatured state of SUMO from *Drosophila melanogaster** **Biomolecular NMR Assignments**; 2008, 2(1), 13-15
3. **Jeetender Chugh**, Shilpy Sharma and Ramakrishna V Hosur<sup>†</sup> *Pockets of Short Range Transient Order and Topological Heterogeneity in Guanidine-Denatured State Ensemble of GED of Dynamitin* **Biochemistry**; 2007, 46(42), 11819-11832
2. **Jeetender Chugh**, Amarnath Chatterjee, Ashutosh Kumar, Ram K Mishra, Rohit Mittal and Ramakrishna V Hosur<sup>†</sup> *Structural Characterization of the Large Soluble Oligomers of the GTPase Effector Domain of Dynamitin* **FEBS Journal**; 2006, 273(2), 388-97
1. Amarnath Chatterjee, Ashutosh Kumar, **Jeetender Chugh**, Sudha Srivastava, Neel S Bhavesh and Ramakrishna V Hosur<sup>†</sup> *NMR of unfolded proteins* **J. Chem. Sci. (Indian Academy of Sciences)**; 2005, 117(1), 3-21

### **Technical Expertise**

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- Trained in *in-vitro* transcription to synthesize oligoribonucleotides (small RNAs) at NMR concentrations.
  - Well acquainted with BRUKER and VARIAN spectrometer handling and setting up solution-state NMR experiments for peptides, proteins and nucleic acids.
  - Pulse programming on BRUKER and VARIAN spectrometer.

- NMR data processing using Felix and NMR Pipe, data analysis using Felix, SPARKY, NMRView and CARA and structure determination software: CYANA.
- Trained in cloning using recombinant DNA technology, point mutations, expression and purification of recombinant proteins with affinity tag and ion exchange chromatography.
- Trained in various biophysical techniques like Circular Dichroism, Fluorescence measurements (Steady-state and Stopped-flow), Dynamic Light Scattering, Capillary Electrophoresis, Differential Scanning Calorimetry, Isothermal Calorimetry, Size Exclusion Chromatography etc.
- Operating Systems used: Mac OSX, Windows and UNIX.

### ***Awards & Recognitions***

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- Received a Travel and Accommodation award from AILM2015 organizer for attending the AILM2015 conference to be held at Grenoble, France during Feb 2-5, 2015
- Received a **Travel Award of \$300** from 46<sup>th</sup> ENC committee for attending 46<sup>th</sup> ENC conference held at Providence, Rhode Island, USA during April 10-15, 2005
- Received **50% Travel Grant** from CSIR for attending 46<sup>th</sup> ENC conference at Providence, Rhode Island, USA during April 10-15, 2005
- Received **50% Travel Grant** from DST for attending 46<sup>th</sup> ENC conference held at Providence, Rhode Island, USA during April 10-15, 2005
- Received support from NMRS, India for attending 46<sup>th</sup> ENC conference held at Providence, Rhode Island, USA during April 10-15, 2005
- Selected for **Travel Award of \$750** from the conference organizers for attending 15<sup>th</sup> ISMAR conference held at Ponte Vedra Beach, Florida, USA during Oct 24-28, 2004
- Selected for **50% Travel Grant** from CSIR for attending 15<sup>th</sup> ISMAR conference held at Ponte Vedra Beach, Florida, USA during Oct 24-28, 2004.
- Selected for INSA support for attending 15<sup>th</sup> ISMAR conference held at Ponte Vedra Beach, Florida, USA during Oct 24-28, 2004
- **Best poster award** at 10<sup>th</sup> NMRS conference held at Kolkata during Feb 17-20, 2004
- Received fellowship from Department of Atomic Energy, Govt. of India during August 2002 – July 2008 for pursuing PhD
- Received TIFR Alumni Association Scholarship for career development in 2002-03, 2003-04, 2004-05 supported by TIFR endowment fund.
- Qualified Graduate Aptitude Test in Engineering (GATE) 2002 in Chemical Sciences with 98.89 percentile and **All India Rank 29**.
- Qualified Council for Scientific and Industrial Research (CSIR) University Grants Commission (UGC) National Eligibility Test (NET) in Chemical Sciences of Dec 2001. **Ranked in Top 20 %**

- Received Jean and Ashit Ganguly Education Scholarship, University of Delhi, 2001
- Received Science Meritorious Award, University of Delhi, 2001
- Received Merit Scholarship from Ministry of Education during 1995-1996

### **Invited Talks**

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- National Symposium on Biophysics and Golden Jubilee Meeting of Indian Biophysical Society at Jamia Millia Islamia, New Delhi during February 14-17, 2015. Invited Speaker (*Visualizing Transient Structures in A-site RNA of the Ribosome: New Structures of Known Molecules for Drug Target*)
- NSASST-2014 at Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra during March 21 – 22, 2014. Plenary Speaker.
- ISCBC-2014 at University of Delhi, Delhi, India during March 1 – 4, 2014. Invited Speaker (*Visualizing Transient Structures in A-site RNA of the Ribosome: New Structures of Known Molecules for Drug Target*)
- India-UK Scientific Seminar on “Complementary Approaches in Structural Molecular Biology” at IISER Pune, India during Jan. 27 – 29, 2014. Invited Speaker (*Visualizing Transient Structures in A-site RNA of the Ribosome*)
- International Conference on Biomolecular Simulations and Dynamics at IIT Madras, India during Nov. 28 – 30, 2013. Invited Speaker (*Visualizing Transient Structures in A-site RNA of the Ribosome*)
- 26<sup>th</sup> July 2012 at RCB Gurgaon (*Visualizing Transient Structures in Asite RNA of the Ribosome*)
- 23<sup>rd</sup> July 2012 at Biology, IISER Pune (*Visualizing Transient Structures in Asite RNA of the Ribosome*)
- 18<sup>th</sup> June 2012 at Chemistry, CBS Mumbai (*Visualizing Transient Structures in Asite RNA of the Ribosome*)
- 15<sup>th</sup> June 2012 at Department of Chemical Sciences, TIFR Mumbai (*Visualizing Transient Structures in Asite RNA of the Ribosome*)
- 14<sup>th</sup> June 2012 at NMR Research Center, IISc Bangalore (*Visualizing Transient Structures in Asite RNA of the Ribosome*)
- 13<sup>th</sup> June 2012 at Molecular Biophysics Unit, IISc Bangalore (*Visualizing Transient Structures in Asite RNA of the Ribosome*)

### **Conferences and Meetings**

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- 7<sup>th</sup> Young Investigator Meeting (YIM 2015) at Gulmarg, J&K, India during March 28-31, 2015. Poster Presentation (*Expanding Current Structural Understanding of the miRNA Biogenesis Pathway*)
- Advanced Isotopic Labeling Methods for Integrated Structural Biology (AILM2015) at Grenoble, France during February 2-5, 2015. Oral Presentation (*Visualizing Transient Structures in A-site RNA of the Ribosome: New Structures of Known Molecules for Drug Target*)
- International Meeting on Chemical Biology at IISER Pune, India during May 26-28, 2013.

- 52<sup>nd</sup> Experimental Nuclear Magnetic Resonance Conference at Asilomar, Pacific Grove, CA during April 10-15, 2011. Poster presentation (*Combined NMR and Stopped-Flow Fluorescence Dissection of Flux Through Induced-Fit Versus Conformational Selection in A-site–Antibiotic Adaptive Recognition*)
- 55<sup>th</sup> Biophysical Society Annual Meeting at Baltimore Convention Center, Baltimore, MD during March 5-9, 2011. Poster presentation (*NMR Dissection of the Detailed Mechanism for Antibiotic Binding to A-site RNA*)
- SuperRNA meeting at University of Michigan, MI, on Feb 7, 2011. **Oral presentation** (*Long-range Activation of RNA Base Flipping by a Non-canonical U.U Base Pair*)
- 51<sup>st</sup> Experimental Nuclear Magnetic Resonance Conference at Daytona Beach, FL during April 18-23, 2010. Poster presentation (*The Two Zinc-Finger Domains in NC Protein Dynamically and Semi-independently Engage Sites on the SL1 RNA*)
- 50<sup>th</sup> Experimental Nuclear Magnetic Resonance Conference at Asilomar, Pacific Grove, CA during March 29-April 3, 2009. Poster presentation (*Visualizing NC mediated kissing to duplex transition in SL1 using NMR*)
- Special symposium on Advanced MR applications and 14th NMRS meeting held at INMAS, Delhi during January 16-19, 2008. Poster Presentations:
  1. **Dinesh Kumar**, Jeetender Chugh, Shilpy Sharma, Ashutosh Kumar, Jyoti Ranjan Misra, and Ramakrishna V hosur (*NMR investigations of structural and dynamic features of SUMO from Drosophila melanogaster*) (**Awarded Best Poster Prize**)
  2. Jeetender Chugh, Dinesh Kumar, **Shilpy Sharma**, Jyoti Ranjan Misra, and Ramakrishna V hosur (*Dynamics perturbations caused by single point mutations in the GED of Dynamin influence its association characteristics*)
  3. **Jeetender Chugh**, Dinesh Kumar, and Ramakrishna V Hosur (*Tuning the HNN experiment: Generation of Serine-Threonine Check Points*)
  4. **Jeetender Chugh**, Shilpy Sharma, and Ramakrishna V Hosur (*NMR insights into ~5 MDa assembly of GED of Dynamin*)
- Workshop on NMR: Principles and Applications held at TIFR, Mumbai from December 3-7, 2007.
- National Symposium on Biophysics: Trends in Biomedical Research, IBS Meeting held at INSA, New Delhi from February 13-15, 2007. Poster presentation (*NMR view of the topological preferences and fluctuations in the denatured state of the GTPase Effector Domain of Dynamin*)
- Current trends in Solid State NMR Methodology and Practice, 13<sup>th</sup> NMRS Meeting at NCL, Pune from February 5-8, 2007. Poster presentation (*Structural and dynamic heterogeneities in guanidine denatured state of GED: all beta propensities in an all alpha helical protein*)
- TIFR-Weizmann Interaction Meeting at TIFR, Mumbai from Nov 26-Dec 1, 2006.
- Workshop on Biomolecular NMR at TIFR, Mumbai from Jan 16-20, 2006.
- 12<sup>th</sup> National Magnetic Resonance Society Meeting (National Symposium on Advances in Magnetic Resonance and its Applications) at Gulmarg, J&K and RRL, Jammu from October 8-11, 2005. **Oral presentation** (*Structural Characterization of the large Soluble Oligomers of GTPase Effector Domain of Dynamin*)

- 46<sup>th</sup> Experimental Nuclear Magnetic Resonance Conference at Rhode Island Convention Center, Providence, RI, USA during April 10-15, 2005. Poster presentation (*Structural studies on GTPase Effector Domain of Dynamin*)
- International conference on Magnetic Resonance in Biological Systems at Shilp Kala Vedika, Hyderabad, India during Jan 16-21, 2005 Poster presentation (*GTPase Effector Domain of Dynamin: structure, function, relationships*)
- Abstract accepted for poster presentation at 15<sup>th</sup> ISMAR conference held at Ponte Vedra Beach, Florida, USA during Oct 24-28, 2004 (NOT ATTENDED)
- Abstract accepted for poster presentation at 45<sup>th</sup> ENC during April 18-23, 2004, held at Asilomar Conference Centre, Pacific Grove, CA (NOT ATTENDED)
- National symposium on NMR Drug Design and Bioinformatics organized by NMRS during Feb 17-20, 2004 at SINP, Kolkata Poster presentation (*GTPase Effector Domain of Dynamin forms stable helical structures*), **received the BEST POSTER Award.**
- National symposium on Cellular and Molecular Biophysics organized by IBS during Jan 14-17, 2004 at NIMHANS, Bangalore Poster presentation (*Biophysical studies on GTPase Effector Domain of Dynamin*)
- Solid state NMR workshop during Dec 22-26, 2003 at TIFR, Mumbai

### **Memberships**

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Lifetime membership of National Magnetic Resonance Society of India (NMRS, India)