

Curriculum Vitae and Publication List

Dr. C. Malla Reddy

Professor, Department of Chemistry
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Home Address: Villa-610, Mayfair Visista Villas (Greenmark)
Velimala Road, Sheriguda, Kondakal, HYDERABAD, TELANGANA 501203, India

Date of birth: 9th Feb 1975 **Nationality:** Indian

Broad Research Areas

- Supramolecular Chemistry & Crystal Engineering
- Solid-State Pharmaceutical Chemistry (Tabletability)
- Structure-Mechanical Property Relationship
- Design of Flexible Organic Functional Materials
- Self-healing Organic Crystalline Materials

Main Research Contributions

- His group is the first to study exceptional elastic flexibility in molecular crystals, which led to an explosive growth of *flexible functional crystals* in materials science.
- His group is credited for the pioneering work on the fundamental understanding of mechanical properties of organic crystals, which has implications to pharmaceutical solids, optoelectronics and various other stimuli responsive smart materials.
- His group discovered piezoelectricity assisted efficient ‘self-healing’ in organic crystals, which paved the way for achieving self-repair in hard matter with high crystallinity with unprecedented efficiency and short time scales.

Education

- B.Sc. (*Botany, Zoology, Chemistry with First Class*) Silver Jubilee Govt. Degree Collage, Sri Krishna Devaraya University, Kurnool, A. P., 1997.
- M.Sc. (*Organic Chemistry with First Class*) Nizam P.G. College, Osmania University, Hyderabad, Telangana, 2000.
- Ph.D. (*Thesis: Intermolecular Interactions and Mechanical Properties of Molecular Crystals—Applications to Crystal Engineering*), School of Chemistry, University of Hyderabad, 2006.
Thesis Supervisors: Prof. Gautam R. Desiraju and Prof. K. Anantha Padmanabhan

Employment/Positions

- **Post Doctoral Fellow:** Supervisor: Prof. Teodor Silviu Balaban (now at Aix Marseille University), Institute of Nanotechnology (INT), Karlsruhe Institute of Technology, Germany, Jan 2007 to June 2008.
- **Assistant Professor**, Department of Chemical Sciences, Indian Institute of Science Education and Research, Kolkata from 4 Aug 2008 to 15 Dec 2013.
- **Associate Professor**, Department of Chemical Sciences, Indian Institute of Science Education and Research, Kolkata from 16 Dec 2013 to Oct 2018.
- **Professor**, Department of Chemical Sciences, Indian Institute of Science Education and Research, Kolkata from Oct 2018-Nov 2023.
- **Head**, Department of Chemical Sciences, Indian Institute of Science Education and Research, Kolkata from Sept 2020-Aug-2023.
- **Professor**, Department of Chemistry, Indian Institute of Technology Hyderabad from December 2023 – present.

Visiting Positions

- Visiting Scientist, Institute of Nanotechnology, Karlsruhe Institute of Technology, Germany, Jun-Aug 2010.
- Visiting Scientist, Georg-August-Universität Göttingen, Germany, June to July 2013.
- Visiting Scientist, Institute of Nanotechnology, Karlsruhe Institute of Technology, Germany, 18 Jun- 01 Aug 2015.
- Honorary Professor, University of Bradford, UK, June 2016.
- Visiting Scientist, University of Leeds, UK, July 2016.

Awards and Distinctions

- Editor-in-Chief for the journal *CrystEngComm* published by Royal Society of Chemistry from 2024-present.
- Bhagyatara Award for the year 2019 by Panjab University, Chandigarh.
- Fellow of the National Academy of Sciences from National Academy of Science, India (2021).
- Swarnajayanti Fellowship in Chemical Sciences for the year 2015 by Department of Science and Technology (DST), Govt. of India.
- The Distinguished Lectureship Award" by Chemical Society of Japan, March 2017.
- Associated Editor for *CrystEngComm*, Royal Society of Chemistry (2019-2024).
- Co-editor for *Acta Cryst B*, International Union of Crystallography (2016-present)
- Associate Editor, *RSC Advances*, Royal Society of Chemistry (2015-2016)
- Advisory Board Member for *CrystEngComm*, published by Royal Society of Chemistry (2016-2019).
- Fellow of the Royal Society of Chemistry, year 2015.
- Junior Research Fellowship (2000-2002) and Senior Research Fellowship (2002-2006) by the Council of Scientific and Industrial Research, India.

Grants and Projects

- Industry Consultancy Grant, Granules India Pvt Ltd on solid-state properties of API (2024-present) with several sub-grants with funding ranging from Rs 6 Lakh to >20 Lakh.
- Core Research Grant by DST on “*Exploration of Mechanically Flexible Organic Single Crystals in Flexible Opto-Electronic Devices*” Amount: 1.02 Core (2021-2024)
- Grant through Swarnajaynti Fellowship, Department of Science and Technology, on “*Designing Mechanical Behaviour of Functional Organic Crystals*” Amount: INR ~ 2.49 crore (USD 3.7 million), during 2016-2021.
- RSC Mobility Grant of £ 8899 (~ Rs 8,40,000/-) by Royal Society of Chemistry to visit the University of Bradford as a Honorary Professor to develop scientific network in UK.
- *Crystal Engineering of Biotin (Vitamin B7) Co-Crystals*, Funding Agency: DST, Amount: ~21 Lakh, Role: Principal Investigator, 2009-2013 (Graded **Excellent**).
- *Design of Mechanochromic Luminescent Materials: Crystal Engineering*, CSIR, Proposed Amount: ~ 19 Lakh, Role: Principal Investigator, 2014-2017.
- Industry Consultancy Project, Cipla Limited, Bangalore. Amount: INR 11,80,000 from April 2019-March 2020.
- Industry Consultancy Project, Cipla Limited, Bangalore. Amount: INR 11,80,000 from April 2020-March 2021.
- Industry Consultancy Project, Cipla Limited, Bangalore. Amount: INR 11,80,000 from April 2021-March 2022.
- Industry Consultancy Project, Cipla Limited, Bangalore. Amount: INR 11,80,000 from April 2022-March 2023.
- Industry Consultancy Project, Cipla Limited, Bangalore. Amount: INR 11,80,000 from April 2023-March 2024.
- *“Stabilizing Sensitive Organic Reagents and Catalysts in Solid-State by Crystal Engineering Approach*, SERB project, INR ~ 30.3 Lakh, from Sept 2018-2021.
- Engaged in collaborative projects with groups from USA (Univ. of Minnesota), UAE (New York University, Abu Dhabi), Germany (Univ. Gottingen), France (ism2, Marseille) and India (IISc).

Professional Services & Synergistic Activities

- *Head*, Department of Chemical Sciences, IISER Kolkata from Sept 2020-2023.
- *International Program Committee (IPC) member*, International Union of Crystallography (IUCr) Congress and General Body meeting, Melbourne, Australia, 21-29 Aug 2023.
- *Guest edited a themed issue on Mechanically Responsive Crystalline Materials*, CrystEngComm, Royal Society of Chemistry, 2021.
- *Advisory board member*, International Conference on the Chemistry of the Organic Solid State (ICCOSS), a reputed international conference of more than 50 yrs old.

- *Performance Based Incentive Award* by IISER Kolkata for best research performance in 2014-2015.
- *Convener* for international conference on *Nanomechanics for Organic Crystals and Pharmaceutical Applications*, 9th Jan 2021 (online)
- *Member of Local Organizing Committee* of IUCr2017 Congress to be held in Hyderabad during 21-28 Aug 2017.
- *Convener* of the India-Bangladesh Structural Chemistry Conference to be held during 18-19 Sept, 2015 at IISER Kolkata
- *Member of the Local Organizing Committee* for “Asian Crystallographic Association meeting” to be held in Dec 2015 at Kolkata.
- *Member of the Local Organizing Committee* for the “International Conference on Structural Chemistry of Molecules and Materials” jointly organized by RSC, IISER Kolkata, Calcutta University and Jadavpur University during 30 Nov-2 Dec 2014, in Kolkata.
- *Member of the Organizing Committee* of “Chemistry: Structure and Dynamics, A Conference on Crystal Engineering”, Coorg, India, 11-14 Dec 2012.
- *Member of the Local Organizing Committee* for “Of Molecules and Materials”, IISER-K, 28-29 Dec, 2009.
- *Member/chairman/convener* of several internal administrative committees at IISER Kolkata.
- *Referee* for multiple chemistry and pharmaceutical solid state chemistry journals (*This includes J. Am. Chem. Soc., Angew. Chem. Ent. Ed., Nat. Commun., Chem. Eur. J., J. Pharm. Sci., Advance Materials, CrystEngComm, Crystal. Growth Des.,*)

Selected Invited Lectures

(Presented more than 200 lectures/talks in various national and international seminars, including in schools, colleges & state universities)

- 12th India-Japan Science and Technology Conclave: ICFAST-2022, 09-10 Sept 2022, Hyderabad.
- *ACS Science Talks* on adaptive Crystals: From Mechanical Bending to Self-Healing, 10th June 2022 (Online for ACS global audience).
- *Departmental Seminar*, School of Physical Sciences, JNU, 8th Sept 2021 (online)
- *Institute Colloquium*, on teachers day, IISER Kolkata, 5th Sept 2021
- CPMU Alumni Day Lecture, JNCASR, 4th Sept 2021 (online)
- Departmental Seminar, IISER Tirupati, 3rd Sept 2021 (online)
- Institute Colloquium, TIFR Mumbai, 1st Sept 2021 (online)
- *Invited Seminar* in National Test House Webinar, Kolkata, 11th Aug 2021 (online)
- **Keynote address** at IUCr Congress, Prague, 14-22 Aug 2021. (online)
- *Departmental Seminar*, Department of Chemistry, IIT Delhi, 15th July 2021 (online)
- *5th David Grant Symposium*, University of Minnesota, 23rd June 2021 (online)
- *Panel Member*, for a discussion session on “*effects of COVID-19 on researchers*” by Royal Society of Chemistry, 12th March 2021 (online)
- “Mechanical Deformation Chemistry of Crystals (Lecture 1)” and “Designing Mechanical Performance of Crystals (Lecture 2)” in the International School of Crystallography, 48th Course on ‘Engineering Crystallography: from Molecule to Crystal to Functional Form’, held at Erice, Sicily, Italy, June 6-13th 2015

- “Understanding the Mechanically Flexible Organic Single Crystals on the Basis of their Structural Chemistry” in the 2nd Conference of the Bangladesh Crystallographic Association (BCA), Dhaka University, Bangladesh, 10 January, 2015.
- “Crystal Engineering Principles for Mechanically Flexible Organic Single Crystals” in National Conference on a New Vistas of Chemistry: An Interdisciplinary Approach, at Department of 5yr Integrated Chemistry, Palamuru University, Mahabub Nagar, during 11-12 March 2015.
- “Understanding Mechanically Reconfigurable Organic Single Crystals” at the Department of Physical Sciences, IISER Kolkata on 25th Feb 2015.
- “Understanding the Mechanically Flexible Organic Single Crystals on the Basis of their Structural Chemistry” in A Mini-symposium on Designer Molecular Crystals: Mechanical and Functional Properties on 14 November 2014 at SSCU, IISc Bangalore.
- “Understanding the Mechanically Flexible Organic Single Crystals on the Basis of their Structural Chemistry” in the International Conference on Structural Chemistry of Molecules and Materials during 30th Nov to 2nd Dec 2014 at CRNN, Univ. Calcutta.
- “Understanding the Mechanically Flexible Organic Single Crystals on the Basis of their Structural Chemistry” National Workshop on Crystallography Education, on November 8, 2014 in the Department of Chemistry, Gauhati University.
- “Functional Crystals: Synthesis and Structure Property Correlation Studies” in 3rd China-India-Singapore (CIS) conference on Crystal Engineering during December 7-10, 2014 at SSCU, IISc Bangalore.
- “Understanding the Mechanically Flexible Organic Single Crystals on the Basis of their Structural Chemistry” in 8th Singapore International Chemical Conference (SICC-8) during 15–17 December 2014 at National University of Singapore.
- “Mechanical Properties of Molecular Crystals: Implications to Pharmaceutical Tabletability” in Indo-US bilateral meeting on the Evolving Role of Solid-State Chemistry in Pharmaceutical Science during 2-4 Feb 2012 in Gurgaon, New Delhi.
- “A Crystal Engineering Approach for the Design of Flexible Organic Materials” Diamond Jubilee Symposium on Recent Trends in Chemistry” 21-23 Oct, 2012, Department of Chemistry, IIT Kharagpur.
- “A Crystal Engineering Approach for the Design of Flexible Organic Materials” in New Directions in Chemical Sciences during 7-9 Dec 2012 at Department of Chemistry, IIT Delhi.
- “Crystal Engineering: First Principles for the Design of Soft Organic Materials” Chemistry: Structure and Dynamics, A Conference on Crystal Engineering, 11-14 Dec 2012. Coorg.
- “Crystal Engineering: First Principles for the Design of Soft Organic Materials” Department of Chemistry, Palamuru University, Mahabub Nagar, 19th Dec, 2012.
- “Structure-Mechanical Property Correlation in Molecular Crystals” Summer School in Pharmaceutical Crystallization, 13-14 June 2011, University of Limerick, Limerick, Ireland.
- “Understanding the Mechanical Deformation of Organic Solids on the Basis of their Crystal Chemistry” in XXII Congress and General Assembly of International Union of Crystallography during 22-30 Aug 2011 in Madrid, Spain.

- “Mechanical Properties of Molecular Crystals: Applications to Crystal Engineering”, 1st China-India-Singapore Symposium on Crystal Engineering, July 30 to Aug 2nd 2010, National University of Singapore, Singapore.
- “Structure-Mechanical Property Correlation in Molecular Crystals: Applications to Crystal Engineering” “9th International Workshop on the Crystal Growth of Organic Materials (CGOM09)” 4-7 Aug 2010, Nanyang Technological University, Singapore.
- “Crystal Chemistry and Mechanical Properties of Molecular Materials” 17th Larson Workshop” Oct 3-6, 2010, Department of Chemical Engineering, Rutgers University, USA.
- “Crystal Engineering and Noncovalent Interactions: Contemporary Themes and Futuristic Developments”, Orange County, Coorg, February 22-25, 2009.
- “Asian Crystallographic Association and Chinese Crystallographic Society” 22-25 October 2009, Beijing, China.
- “Structure–Property Correlations in Shearing, Bending and Brittle Organic Crystals” VI International Conference on Mechanochemistry and Mechanical Alloying (INCOME), December 1-4, 2008 Jamshedpur, India.

Teaching (selected list of unique courses)

- Molecular Spectroscopy, Instructor for a 2 Credit Theory Course for 2nd year BTech, Industrial Chemistry during the year 2024.
- “Controlling Properties of Pharmaceutical Solid Drugs”, Co-instructor for 3 Credit Laboratory Course, named “Advanced chemistry laboratory (CH4220)” for MSc and IPhD students during 2022-23.
- “Supramolecular Chemistry and Applications” Co-Instructor for 3 Credit Theory Course for 5th Year BS-MS, IPhD and PhD students at IISER Kolkata, in 2017, 2018, 2019, 2020, 2021 and 2022.
- “Chemistry of Elements” Co-Instructor for 3 Credit Theory Course for 1st Year BS-MS students at IISER Kolkata, 2009 and many subsequent years.
- “Qualitative Analysis of Organic Compounds” Co-Instructor for 3 Credit Lab Course for 1st Year BS-MS students at IISER Kolkata, 2010 and 2011.
- “Physical Organic Chemistry” 3 Credit Theory Course for 3rd Year BS-MS students at IISER Kolkata, in 2010, 2011, 2012, 2013, 2014, 2015, 2016 and 2017.
- “Physical Methods for Structure Elucidation” (Basics of X-Ray Crystallography) Co-Instructor for 3 Credit Theory Course for 4th Year BS-MS and PhD course work, 2010, 2011, 2012, 2013, 2014, 2015, 2016 and 2017.

Students Supervision

Current group members: (PhD: 07; PostDocs: 02)

- Shamim Ahmed, PhD, JRF (CSIR)
- Ishita Ghosh, PhD, JRF (IISERK)
- Kaustav Das, PhD, JRF (CSIR)
- Lalita Mehra, IPhD, JRF (IISERK)
- Sayantan Gayen, IPhD, JRF (IISERK)
- Dr. Sumair Rather, NPDP, (SERB)
- Dr. Biswajit Nayak, IPDF, (IISERK)

Graduated PhD students: (07)

- Dr. Partha Pratim Bag (2013)
- Dr. G. Rama Krishna (2014)
- Dr. Soumyajit Ghosh (2014)
- Dr. D. Ramesh (2017)
- Dr. Ranita Samanta (2019)
- Susobhan Das (2022)
- Surojit Bhunia (2022)
- Amit Mondal, Int-PhD, SRF (IISER Funded)

Undergraduate students (BSMS & IPhD projects) supervised: 17

TEN most significant publications in independent career:

1. S. Bhunia, S. K., Karan, R. Chowdhury, I. Ghosh, S. Saha, K. Das, A. Mondal, A. Nanda, B. B. Khatua, C. M. Reddy, Mechanically flexible piezoelectric organic single crystals for electrical energy harvesting. *Chem*, **2024**, DOI: 10.1016/j.chempr.2024.01.019.
2. R. Samanta, S. Das, S. Mondal, T. Alkhidir, S. Mohamed, S. P. Senanayak & **C. M. Reddy**, Elastic organic semiconducting single crystals for durable all-flexible field-effect transistors: insights into the bending mechanism, *Chem. Sci.*, **2023**, *14*, 1363-1371. (*Front Cover Illustration*)
3. S. Bhunia, S. Chandel, S. K. Karan, S. Dey, A. Tiwary, S. Das, N. Kumar, R. Chowdhury, S. Mondal, I. Ghosh, A. Mondal, B. B. Khatua, N. Ghosh, **C. M. Reddy**, Autonomous self-repair in piezoelectric molecular crystals, *Science*, **2021**, *373* (6552), 321-327.
4. A. Mondal, B. Bhattacharya, S. Das, S. Bhunia, R. Chowdhury, S. Dey, **C. M. Reddy**, Metal-like ductility in organic plastic crystals: Role of molecular shape and dihydrogen bonding interactions in aminoboranes, *Angew. Chem. Int. Ed.*, **2020**, *59*, 10971–10980.
5. B. Bhattacharya, D. Roy, S. Dey, A. Puthuvakkal, S. Bhunia, S. Mondal, R. Chowdhury, M. Bhattacharya, M. Mandal, K. Manoj, P. K. Mandal, C. M. Reddy, Mechanical-Bending-Induced Fluorescence Enhancement in Plastically Flexible Crystals of a GFP Chromophore Analogue, *Angew. Chem. Int. Ed.* **2020**, *59*, 19878-19883.
6. S. Das, A. Mondal, **C. M. Reddy**, Harnessing molecular rotations in plastic crystals: a holistic view for crystal engineering of adaptive soft materials, *Chem. Soc. Rev.*, **2020**, *49*, 8878-8896.
7. K. Dey, S. Bhunia, H. S. Sasmal, **C. M. Reddy**, R. Banerjee, Self-Assembly-Driven Nanomechanics in Porous Covalent Organic Framework Thin Films, *J. Am. Chem. Soc.*, **2021**, *143*, *2*, 955–963.
8. G. R. Krishna, R. Devarapalli, G. Lal, **C. M. Reddy**, Mechanically Flexible Organic Crystals Achieved by Introducing Weak Interactions in Structure: Supramolecular Shape Synthons, *J. Am. Chem. Soc.*, **2016**, *138*, 13561. (*Front Cover Illustration*)
9. M. K. Panda, S. Ghosh, N. Yasuda, T. Moriwaki, G. D. Mukherjee, **C. M. Reddy** Naumov, P., Spatially resolved analysis of short-range structure perturbations in a plastically bent molecular crystal, *Nature Chem.* **2015**, *7*, 65-72.

10. S. Ghosh, **C. M. Reddy**, Elastically bendable caffeine co-crystals: implications for flexible organic materials design, *Angew. Chem. Int. Ed.*, **2012**, *51*, 10319-10323. [*Highlighted in Nature Chemistry, Nature India, RSCWorld*].

Patents Filed /Granted:

1. Bipyrazolyl hydrate crystals prepared by a process, Patent No: 421861; Application No: 201921024663, Indian Patent Granted in Feb 2023.
2. "Self-healing organic crystals", Surojit Bhunia, C. Malla Reddy, Application no: 202131033511 (Indian Patent filled in year 2021)
3. "Self-Healing organic crystals"; US Patent Application No. 17/873,246 published in the year 2023.

C. Malla Reddy's Publication Details:

Number of Total publications: ~ 140

Number of Total Citations (Google Scholar): > 8000

H-Index (Google Scholar): 44

Full list of publications can be found here (Google Scholar):

https://scholar.google.com/citations?hl=en&user=IwUX2dwAAAAJ&sortby=pubdate&scilu=&scisig=AMD79ooAAAAAYLCCr7LuRufmNfJnG6VWx7xc8697gLav&gmla=AJsN-F6SBxBMH1Mi3WV4ELxt1hy-kxslFEadhQ2o9O9IHvr6k5MxA96thvFaNL6jakH-qhwXv3smYhOgBmLxDMOReAUiC_91LTa6HEunPe8Ha45q50GuRG0&sciund=3602025498339422120

List of Selected Publications

1. I. S. Divya, A. Mondal, S. Bhunia, K. S. R. N. Mangalampalli, J. John, **C. M. Reddy**, S. Varughese, Dehydration-Driven Nanomechanical Responses of the Antiviral Drug EIDD-1931, *Cryst. Growth Des.*, 2023, 23, 2550-250.
2. I. Ghosh, M. Tanwar, R. Kumar, **C. M. Reddy**, The world of exotic crystals: Raman spectro-microscopy for probing local structure, *AsiaChem Mag.*, 2023, 3, 100-109.
3. K. J. Kalita, S. Mondal, **C. M. Reddy**, R. K. Vijayaraghavan, Temperature-Regulated Dual Phosphorescence and Mechanical Strain-Induced Luminescence Modulation in a Plastically Bendable and Twistable Organic Crystal, *Chem. Mater.*, 2023, 35, 2, 709–718.
4. I. Ahmad, A. A. Ganie, S. Ahmad, A. A. Ahangar, **C. M. Reddy** and A. A. Dar, A high Z' structure of an organic salt with unusually high phase stability, nanoindentation, and mechano and vapo-fluorochromism, *CrystEngComm*, 2023, DOI: 10.1039/d2ce01693a
5. T. Rajbongshi, K. K. Sarmah, S. Das, P. Deka, A. Saha, B. K. Saha, H. Puschmann, **C. M. Reddy** and R. Thakuria, Non-stoichiometric carbamazepine cocrystal hydrates of 3,4-/3,5-dihydroxybenzoic acids: cofomer–water exchange, *Chem. Commun*, 2023, 59, 3902-3905.
6. J. Ravi, T. Feiler, A. Mondal, A. A. L. Michalchuk, **C. M. Reddy**, B. Bhattacharya, F. Emmerling, and R. Chandrasekar, Plastically Bendable Organic Crystals for Monolithic and Hybrid Micro-Optical Circuits, *Adv. Opt. Mater.*, 2022, 2201518.
7. R. Samanta, S. Das, S. Mondal, T. Alkhidir, S. Mohamed, S. P. Senanayak & **C. M. Reddy**, Elastic organic semiconducting single crystals for durable all-flexible field-effect transistors: insights into the bending mechanism, *Chem. Sci.*, 2023, 14, 1363-1371. (*Front Cover Illustration*)
8. S. Das, S. Saha, M. Sahu, A. Mondal, **C. M. Reddy**, Temperature-Reliant Dynamic Properties and Elasto-Plastic to Plastic Crystal (Rotator) Phase Transition in a Metal Oxyacid Salt, *Angew. Chem. Int. Ed.* 2022, 61, e2021153.
9. K. Koner, S. Das, S. Mohata, N. T. Duong, Y. Nishiyama, S. Kandambeth, S. Karak, **C. M. Reddy**, R. Banerjee, Viscoelastic Covalent Organic Nanotube Fabric via Macroscopic Entanglement, *J. Am. Chem. Soc.* 2022, 144, 35, 16052–16059.
10. S. Mohata, K. Dey, S. Bhunia, N. Thomas, E. B. Gowd, T. G. Ajithkumar, **C. M. Reddy**, R. Banerjee, Dual Nanomechanics in Anisotropic Porous Covalent Organic Framework Janus-Type Thin Films, *J. Am. Chem. Soc.* 2022, 144, 1, 400–409.

11. S. Bhunia, S. Chandel, S. K. Karan, S. Dey, A. Tiwary, S. Das, N. Kumar, R. Chowdhury, S. Mondal, I. Ghosh, A. Mondal, B. B. Khatua, N. Ghosh, **C. M. Reddy**, Autonomous self-repair in piezoelectric molecular crystals, *Science*, **2021**, 373 (6552), 321-327.
12. Y. Su, S. Bhunia, S. Xu, A. Chen, **C. M. Reddy**, and T. Cai, Structure–Thermomechanical Property Correlation in Polymorphic Molecular Crystals Probed by the Nanoindentation Technique, *Chem. Mater.*, **2021**, 33, 12, 4821–4829.
13. R. Devarapalli, A. Indukuri, M. Bollineni, A. Mondal, **C. M. Reddy**, R. Chennuru, Investigation of Poor Solubility of a Salt-Cocrystal Hydrate: A Case Study of the Common-Ion Effect in Betrixaban, an Anticoagulant Drug, *Mol. Pharmaceutics* **2021**, 3, 1138–1149.
14. K. Dey, S. Bhunia, H. S. Sasmal, **C. M. Reddy**, R. Banerjee, Self-Assembly-Driven Nanomechanics in Porous Covalent Organic Framework Thin Films, *J. Am. Chem. Soc.*, **2021**, 143, 2, 955–963.
15. C. C. Sun, **C. M. Reddy**, Mechanically responsive crystalline materials (editorial), *CrystEngComm*, **2021**, 23, 5683-5685.
16. V. Gude, P. S. Choubey, S. Das, S. Bhaktha B. N., **C. M. Reddy** and K. Biradha, Elastic orange emissive single crystals of 1,3-diamino-2,4,5,6-tetrabromobenzene as flexible optical waveguides, *J. Mater. Chem. C*, **2021**, 9, 9465-9472.
17. M. K. Mishra, K. Mishra, A. Narayan, **C. M. Reddy**, V. R. Vangala, Structural Basis for Mechanical Anisotropy in Polymorphs of a Caffeine–Glutaric Acid Cocrystal, *Cryst. Growth Des.*, **2020**, 20, 10, 6306–6315.
18. M. Annadhasan, A. R. Agrawal, S. Bhunia, V. V. Pradeep, P. S. S. Zade, **C. M. Reddy**, R. Chandrasekar, Mechanophotonics: Flexible Single-Crystal Organic Waveguides and Circuits, *Angew. Chem. Int. Ed.*, **2020**, 59, 13852–13858.
19. A. Mondal, B. Bhattacharya, S. Das, S. Bhunia, R. Chowdhury, S. Dey, **C. M. Reddy**, Metal-like ductility in organic plastic crystals: Role of molecular shape and dihydrogen bonding interactions in aminoboranes, *Angew. Chem. Int. Ed.*, **2020**, 59, 10971–10980.
20. B. Bhattacharya, D. Roy, S. Dey, A. Puthuvakkal, S. Bhunia, S. Mondal, R. Chowdhury, M. Bhattacharya, M. Mandal, K. Manoj, P. K. Mandal, **C. M. Reddy**, Mechanical-Bending-Induced Fluorescence Enhancement in Plastically Flexible Crystals of a GFP Chromophore Analogue, *Angew. Chem. Int. Ed.*, **2020**, 59, 19878-19883.
21. S. Ranjan, R. Devarapalli, S. Kundu, S. Saha, S. Deolka, V. R. Vangala, **C. M. Reddy**, Isomorphism: molecular similarity to crystal structure similarity in multicomponent forms of analgesic drugs tolfenamic and mefenamic acid, *IUCrJ*, **2020**, 7, 173-183.
22. R. Chennuru, R. Devarapalli, P. Rengaraj, P. L. Srinivas, S. Dey, **C. M. Reddy**, Improving Solubility of Poorly Soluble Abiraterone Acetate by Cocrystal Design Aided by In Silico Screening, *Cryst. Growth Des.*, **2020**, 20, 8, 5018–5030.
23. R. Samanta, D. Kitagawa, A. Mondal, M. Bhattacharya, M. Annadhasan, S. Mondal, R. Chandrasekar, S. Kobatake, **C. M. Reddy**, Mechanical Actuation and Patterning of Rewritable Crystalline Monomer–Polymer Heterostructures via Topochemical Polymerization in a Dual-Responsive Photochromic Organic Material, *ACS Appl. Mater. Interfaces*, **2020**, 12, 14, 16856–16863.

24. S. Ranjan, R. Devarapalli, S. Kundu, S. Saha, S. Deolka, V. R. Vangalac, **C. M. Reddy**, Isomorphism: 'molecular similarity to crystal structure similarity' in multicomponent forms of analgesic drugs tolfenamic and mefenamic acid, *IUCrJ*, **2020**, 7, 173–183.
25. S. Das, A. Mondal, **C. M. Reddy**, Harnessing molecular rotations in plastic crystals: a holistic view for crystal engineering of adaptive soft materials, *Chem. Soc. Rev.*, **2020**, 49, 8878-8896.
26. S. Dey, S Das, S Bhunia, R Chowdhury, A Mondal, B Bhattacharya, R Devarapalli, N Yasuda, T Moriwaki, K Mandal, G D Mukherjee, **C. M. Reddy**, Mechanically interlocked architecture aids an ultra-stiff and ultra-hard elastically bendable cocrystal, *Nat. Commun.*, **2019**, 3711(10).
27. **C. M. Reddy**, Plasticity enhancement in pharmaceutical drugs by water of crystallization: unusual slip planes, *IUCrJ*, **2019**, 6 (Pt 4), 505.
28. Zhou, R Patterson, P A Williams, B M Kariuki, C E Hughes, R Samanta, R Devarapalli, **C. M. Reddy**, D C Apperley, Kenneth DM Harris, Temperature-Dependent Structural Properties, Phase Transition Behavior, and Dynamic Properties of a Benzene Derivative in the Solid State, *Cryst. Growth Des.* **2019**, 19, 4, 2155-2162.
29. R Devarapalli, S B Kadambi, C Chen, G R Krishna, B R Kammari, M J Buehler, U Ramamurty, **C. M. Reddy**, Remarkably Distinct Mechanical Flexibility in Three Structurally Similar Semiconducting Organic Crystals Studied by Nanoindentation and Molecular Dynamics; *Chem. Mater.*, **2019**, 31(4), 1391-1402.
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