



## Santosh Kumar MYANA

Nationality: [REDACTED] Date of birth: [REDACTED]

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### WORK EXPERIENCE

#### Assistant Professor

*CMR Institute of Technology Hyderabad* [ 13/06/2022 – Current ]

Address: Kandlakoya Medchal, 501401 Hyderabad (India)

#### Assistant Professor

*Sree Dattha Institute of Engineering and Science, Hyderabad* [ 13/01/2020 – 20/05/2022 ]

City: Hyderabad

Country: India

#### Research Scholar

*University of Caen Normandie* [ 01/10/2013 – 06/01/2017 ]

City: Caen

Country: France

Website: <https://crismat.cnrs.fr/>

Name of unit or department: Laboratory of Crystallography and Materials Science (CRISMAT)

Our research was primarily concerned with the physical properties of polycrystalline  $\text{Sr}_2\text{FeMoO}_6$  thin films grown on isostructural ceramic or polycrystalline substrates, where thin film growth parameters play an important role. The process of Spark Plasma Sintering was used to fabricate the substrates. By adjusting the substrate temperature and the oxygen pressure in the chamber during the deposition and cooling processes, the growth of the films was optimized.

Later, thin films were subjected to different characterization techniques to understand the crystallographic symmetry, microstructure, grain over grain growth of film on substrate, magnetic, transport and magneto-transport properties. The grain boundaries and antiphase boundaries within the grains due to anti-site disorder, can contribute to prominent low field magnetoresistance (LFMR) in these compounds. A systematic analysis was carried out to comprehend the variation of physical properties of thin films deposited at various conditions.

#### Visiting Research Scholar

*University of Liege* [ 16/05/2016 – 29/08/2016 ]

City: Liege

Country: Belgium

Website: <https://greenmat.be/>

Name of unit or department: Group of Research in Energy and Environment from Materials (GREENMAT) laboratory

This work focused on understanding the ferroelastic properties of double perovskite  $\text{Ca}_2\text{MgWO}_6$  material. Mechano-chemical synthesis was adopted to fabricate  $\text{Ca}_2\text{MgWO}_6$  ceramics. Inherent ferroelastic property of this compound was unveiled through twin grain morphology observed in the microstructure. In addition, a non linear stress-strain characteristics were realized by studying the mechanical properties such as compression and repetitive nano-indentation, which establish the inherent ferroelastic nature of this compound.



## Visiting Research Scholar

**University of Liege** [ 13/04/2015 – 24/07/2015 ]

City: Liege

Country: Belgium

Website: <https://greenmat.be/>

Name of unit or department: Group of Research in Energy and Environment from Materials (GREENMAT) laboratory

This study was aimed to develop  $\text{LaMnO}_3$  polycrystalline thin films through a cost-effective and less sophisticated Chemical solution deposition technique. In this work, we used Spark Plasma Sintering (SPS) to create large grain structured polycrystalline  $\text{LaAlO}_3$  substrates. The metal-polymer complex solutions of different concentrations were prepared through Ultrafiltration. The final solution was spin-coated on substrates using different parameters and the film was subsequently annealed at proper temperatures to obtain the final film.

## EDUCATION AND TRAINING

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### Ph.D.

**Université de Caen Normandie** [ 01/10/2013 – 05/01/2017 ]

City: Caen

Country: France

Website: <https://www.unicaen.fr/>

Field(s) of study: Chemistry of Materials

Thesis: Synthesis and Characterization  $\text{Sr}_2\text{FeMoO}_6$  thin films grown on isostructural ceramic substrates

### Master of Technology

**Indian Institute of Technology Hyderabad** [ 25/07/2011 – 26/07/2013 ]

City: Hyderabad

Country: India

Website: <https://www.iith.ac.in/>

Field(s) of study: Materials Science and Engineering

Final grade: 8.8/10

Thesis: Electrical transport studies of  $\text{GeTe}_6$  thin films using scanning probe microscope operated in conductive mode for phase change memory applications

### Master of Science

**Kakatiya University** [ 01/09/2008 – 30/08/2010 ]

City: Warangal

Country: India

Website: <https://www.kakatiya.ac.in/>

Field(s) of study: Engineering Physics and Instrumentation

### Bachelor of Science

**Kakatiya University** [ 05/07/2004 – 07/07/2007 ]

City: Warangal

Country: India

Website: <https://www.kakatiya.ac.in/>

Field(s) of study: Maths, Physics and Chemistry

### Certificat d'Aptitude Professionnelle (CAP) Langue Française

**Enefa – Normandie Formation Avenir** [ 22/10/2018 – 13/03/2019 ]

City: Caen

Country: France



Website: <https://aifst.fr/enefa/>

Field(s) of study: Learning French Language

Final grade: B1

The language training classes took place between 22nd of Oct 2018 and 13th March 2019, for a total duration of 420 hours.

This training program was financed by Normandie Regional Council.

## LANGUAGE SKILLS

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Mother tongue(s): **Telugu**

**Other language(s):**

### English

**LISTENING C1 READING C1 WRITING C1**

**SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1**

### Hindi

**LISTENING B1 READING B1 WRITING B1**

**SPOKEN PRODUCTION A2 SPOKEN INTERACTION A2**

### French

**LISTENING B1 READING B1 WRITING B1**

**SPOKEN PRODUCTION B1 SPOKEN INTERACTION B1**

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*

## OTHER DETAILS

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### OTHER TEACHING EXPERIENCE

- [Aug 2010 – April 2011], managed to do private home tuitions to high school students while preparing for the GATE exam. The Graduate Aptitude Test in Engineering (GATE) is a national-level test organized for aspirants who want admission to Master's programmes or postgraduate engineering (ME/M.Tech) at top institutes in India such as IITs, NITs, etc.
- [July 2007 – Mar 2008], worked as a Physical science teacher in Sarasvati Vidhyanikethan high school, Garshakurthi, Karimnagar INDIA.

### ACADEMIC ACHIEVEMENTS

- Ratified by Jawaharlal Nehru Technological University Hyderabad (JNTUH) as 'Assistant Professor' in accordance with All India Council for Technical Education (AICTE) norms.
- Received Erasmus Mundus Doctoral fellowship sponsored by EACEA of European Commission to pursue my Ph.D. program.
- Qualified a National level exam called Graduate Aptitude Test in Engineering (GATE-2012) and secured a rank of 335 with a percentile of 95.
- Received Ministry of Human Resource Development (MHRD) India scholarship to pursue my Master's program, Master of Technology (M.Tech) at IIT Hyderabad.

### TEACHING SUBJECTS

- Applied Physics
- Engineering Physics

### TECHNICAL SKILLS

**Synthesis techniques:** Solid state route, Chemical solution route, Spark Plasma Sintering (SPS), Combustion method and Sol-gel technique and metallographic techniques for characterizations.

**Thin film fabrication:** Pulsed Laser Deposition (PLD), Sputtering, Polymer assisted deposition (PAD) by Spin coating and doctor blade.

**Microstructural studies:** Optical microscope, Atomic Force Microscope (AFM), Contact mode and tapping mode imaging, and Scanning Electron Microscope (SEM).



**Structural Characterization:** X-Ray Diffraction (XRD) and Grazing Incidence X-ray Diffraction (GIXRD) for characterization of thin films, Energy Dispersive Spectroscopy (EDS) and Electron Backscatter Diffraction (EBSD) by Scanning Electron Microscope (SEM).

**Transport measurements:** Metallization (Au, Ag and Pt), Electrodes by Wire bonding, Conductive tip-AFM and Four probe technique for Resistivity measurements using Physical Property Measurement System (PPMS).

**Magnetic measurements:** Hysteresis and temperature dependent magnetization measurements using Superconducting Quantum Interference Device (SQUID).

Mechanical behavior of Ceramics: Compression and Nano-indentation tests on ceramic samples.

**Software/Packages:** Origin Labs, Diamond, X'pert Highscore, Nanoscope Analysis, Orientation Imaging Microscope (OIM) Analysis, MS office/Windows family, and TeXstudio.

## MAJOR COURSES ATTENDED

- Properties of materials
- Advanced materials synthesis and characterization
- Electron microscopy
- Thin film technology

## FACULTY DEVELOPEMENT PROGRAMS (FDP)

- Attended a one-week FDP on "Recent Trends in Materials Science and Technology" from 25th to 29th of Aug 2020, organized by Dept. of Physics at HITAM in Hyderabad India.
- Attended a one week Short term training program (STTP) on "Nanotechnology and Functional Materials", from 17th to 22nd of Aug 2020, organized by the Dept. of Mechanical Engg. at SV College of Engineering in Tirupathi India.

## CONFERENCES AND SEMINARS

- Oral presentation at International Conference on Nanomaterials and Technologies (CNT) 2024, held in VJIT Hyderabad, India during 02-03 Feb 2024.
- Oral presentation at International Conference on Multifunctional Materials (ICMM-2022), held in Hyderabad, India during 22-24 December 2022.
- Oral presentation at Recent Advances in Materials Science and Technology (RAMSAT-2022), held in Karimnagar, India during 23-24 September 2022.
- Oral presentation at Unveiling complex phenomena in Functional Oxides (UFOX) conference, held in Fisciano, Italy during 7-8 June 2016.
- Oral presentation and poster at International Doctoral School in Functional materials (IDS-FunMat) conference, held in Bordeaux, during 14-18 March 2016.
- Presented a poster on the Department day of Chemistry, held at University of Liege in Liege on 2nd July 2015.
- Oral presentation and poster at International Doctoral School in Functional Materials (IDS-FunMat) conference, held in Vallendar, Germany, during 16-20 March 2015.
- Delivered an Oral presentation on CRISMAT student day, held at CRISMAT, Caen on 28th May 2014.
- Oral presentation and poster at IDS-FunMat conference, held in Spa, Belgium during 17-21 March, 2014.
- Poster presentation at Advances in Materials Science and Technologies (AMST) conference, held at Kakatiya University, Warangal (India), during 19-21 Nov 2012.

## PUBLICATIONS

- "Pulsed Laser Deposition of  $\text{Sr}_2\text{FeMoO}_6$  Thin Films grown on Spark Plasma Sintered  $\text{Sr}_2\text{MgWO}_6$  Substrates", M. Santosh, M. Lacotte, A. David, Ph. Boullay, C. Grygiel, D. Pravarthana, G.S. Rohrer, P.A. Salvador, P. Padhan, U. Luders, Junling Wang, and W. Prellier, J. Phys. D: Appl. Phys. 50 (2017) 235301.
- "Low power ovonic threshold switching characteristics of thin  $\text{GeTe}_6$  films using conductive atomic force microscopy", Anbarasu Manivannan, Santosh Kumar Myana, Kumaraswamy Miriyala, Smriti Sahu, and Ranjith Ramadurai, Appl. Phys. Lett. 105, 243501 (2014).
- "Unveiling the microstructural twinning and ferroelastic dynamics in double perovskite  $\text{Ca}_2\text{MgWO}_6$ ", M. Santosh, G. Margaux, G. Moussa, E. Hug and W. Prellier. (Submitted to a journal).
- Synthesis, structure, morphology and magnetic properties of double perovskite  $\text{Ba}_2\text{MgWO}_6$  ceramics. (To be communicated)



- "Substrate induced effects on the magnetic and magneto-transport properties of  $\text{Sr}_2\text{FeMoO}_6$  thin films grown on polycrystalline substrates using Pulsed laser deposition". M. Santosh and Wilfrid Prellier. (To be communicated)
- "Laser induced structural transformation and electrical switching studies of  $\text{GeTe}_6$  thin films using atomic force microscopy", M. Santosh and Ranjith Ramadurai. (To be communicated)

## REFERENCES

**Prof. Wilfrid PRELLIER**

Research Director CNRS

Director of Laboratoire CRISMAT

Associate Editor AIP Advances

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