

Dr. Samar Kumar Medda

LIST OF PUBLICATIONS:

1. "Inorganic-organic hybrid coatings on polycarbonate. Spectroscopic studies on the simultaneous polymerization of methacrylate and silica networks"
S. K. Medda, D. Kundu and G. De, *J. Non Cryst. solids* 2003, 318,149-156. IF: **1.766**
2. "Metal nanoparticle doped coloured films on glass and polycarbonate substrates"
S. K. Medda, M. Mitra, S. De, S. Pal and G. De, '*Pramana*, **2005**, 65, 931-936. IF: **0.649**
3. "Synthesis of Au-nanoparticle doped SiO₂-TiO₂ films: tuning of Au-surface plasmon band position through controlling the refractive index"
S. K. Medda, S. De and G. De, *J. Mater. Chem.* **2005**, 15, 3278-3284. IF: **6.626**
4. "Nonlinear optical absorption and switching properties of gold nanoparticle doped SiO₂-TiO₂ sol-gel films"
N. Venkatram, R. Sai Santosh Kumar, D. Narayana Rao, **S. K. Medda**, S. De and G. De, *J. Nanosci. Nanotech.*, **2006**, 6, 1990-1994. IF: **1.556**
5. "Refractive index controlled plasmon tuning of Au nanometals in SiO₂-ZrO₂ film matrices"
S. De, **S. K. Medda**, and G. De, *J. Nanosci. Nanotech.* **2008**, 8, 3868-3876. IF: **1.556**
6. "Metal nanoparticle doped coloured coatings on glasses and plastics through tuning of surface plasmon band position"
G. De, S. De, **S. K. Medda** and S. Pal *Bull. Mater Sci.*, **2008**, 31, 479-485. IF: **1.01**
7. "Tuning of Ag-SPR band position in refractive index controlled inorganic-organic hybrid SiO₂-PEO-TiO₂ films"
S. K. Medda, M. Mitra and G. De, *J. Chem. Sci.(Spl. issue)* **2008**, 120, 565-572. IF: **1.191**
8. "Inorganic-organic nanocomposite based hard-coatings on plastics using *in-situ* generated nano SiO₂ bonded with ≡Si-O-Si-PEO hybrid network"
S. K. Medda and G. De, *Ind. & Eng. Chem. Res.* **2009**, 48, 4326-4333. (IF **2.587**)

9. "Inorganic–Organic Nanocomposite Based Hard Coatings on Plastics Using In Situ Generated Nano-SiO₂ Bonded with ≡Si-O-Si–PEO Hybrid Network", Samar Kumar Medda and Goutam De*, *Ind. & Eng. Chem. Res.* **2009**, *48*, 6906 (*additions & corrections*). IF: **2.587**
10. "Ag-TiO₂ Nanoparticle Codoped SiO₂ Films on ZrO₂ Barrier-Coated Glass Substrates with Antibacterial Activity in Ambient Condition" A. Mukhopadhyay, S. Basak, J. K. Das, S. K. Medda, K. Chattopadhyay and G. De, *ACS Appl. Mater. Interface* **2010**, *2*, 2540-2546. IF: **6.723**
11. "Au@MO₂ (M= Ti, Zr, Si) Films on Glass by Ex Situ Incorporation Approach" Arun R Chandran, S. Pal, S. K. Medda and G. De, *Sci. Adv. Mater.* **2012**, *4*, 663-668. IF: **3.308**
12. "Superhydrophobic Films on Glass Surface Derived from Trimethylsilylated Silica Gel Nanoparticles" D. Goswami, S. K. Medda, and G. De, *ACS Appl. Mater. Interface* **2011**, *3*, 3440-3447. IF: **6.723**
13. "Covalently functionalized reduced graphene oxide by organically modified silica: a facile synthesis of electrically conducting black coatings on glass"
K. Bhowmik, S. Pramanik, S. K. Medda and G. De*, *J. Mater. Chem.* **2012**, *22*, 24690-24697. IF: **6.626**.
14. "Wavelength Selective Antireflective Coatings on Plastics with Hydrophobic Surfaces"
S. De; D. Jana; **S. K. Medda** and G. De, *Ind. & Eng. Chem. Res.* **2013**, *52*, 7737-7745. (IF **2.587**)
15. **Featured Article:**
"Wavelength Selective Antireflective Coatings on Plastics with Hydrophobic Surfaces"
S. De; D. Jana; **S. K. Medda and G. De in Advances in Engineering**, published on **20/03/2014**.
16. "Durable superhydrophobic ZnO—SiO₂ films: A new approach to enhance the abrasion resistant property of trimethylsilyl functionalized SiO₂ nanoparticles on glass"
I. Das, M. K. Mishra, S. K. Medda and G. De*
RSC Adv., **2014**, *4* (98), 54989 – 54997. (IF: **3.84**); (DOI: 10.1039/C4RA10171E).

17. "Hierarchically Designed Bioactive Glassy Nanocoatings for Faster and Uniformly Dense Apatite Growth"
I. Das, S. K. Medda and G. De* S. Fagerlund, L. Hupa, M. A. Puska and P. K. Vallittu
J. Am. Ceram. Soc., **2015**, 98 [8] 2428–2437; (DOI: 10.1111/jace.13626)
IF: **2.61**

18. "ZrO₂ incorporated TiO₂ based solar reflective nanocomposite coatings on glass to be used as energy saving building components"
Suparna Bhattacharyya, Srikrishna Manna* and Samar Kumar Medda*
SN Appl. Sci. **2019**, 1:1464-71 (IF: 2.11); <https://doi.org/10.1007/s42452-019-1169-x>

19. "Photocatalytic evaluation of anatase TiO₂ coating on ceramic tiles by Raman spectroscopy"
Samar Kumar Medda^{1,*}, Srikrishna Manna¹ and Goutam De^{2,*}
Trans. Ind. Ceram. Soc., **2020**, 79 (1), 13-17. (IF: 1.014).
<https://doi.org/10.1080/0371750X.2019.1696233>.

20. "Tailored piezoelectric performance of Self-Polarized PVDF-ZnO composites by optimization of aspect ratio of ZnO nanorods"
Shewli Pratihari¹, Samar Kumar Medda², Shrabanee Sen^{1*}, P. Sujatha Devi^{3*}
Polymer Composites, **2020**, 1–13. (IF: 2.265).
<https://doi.org/10.1002/pc.25624>

21. "Fabrication of Germanium-on-insulator in a Ge wafer with a crystalline Ge top layer and buried GeO₂ layer by Oxygen ion implantation"
Vishal Kumar Aggarwal, Ankita Ghatak, Dinakar Kanjilal, Debdulal Kabiraj, Achintya Singha, Sandip Bysakh, Samar Kumar Medda, Supriya Chakraborty, A.K. Raychaudhuri*
Materials Science & Engineering B, **2020**, 260, 114616-24. (IF: 4.706)
<https://doi.org/10.1016/j.mseb.2020.114616>.

22. "Ammonia Sensing by Sn_{1-x}V_x O₂ Mesoporous Nanoparticles"
Nirman Chakraborty, Ambarish Sanyal, Sagnik Das, Debdulal Saha, Samar Kumar Medda, and Swastik Mondal*
ACS Appl. Nano Mater., **2020**, 3, 8, 7572–7579 (IF: 3.939)
<https://doi.org/10.1021/acsanm.0c01183>.

• Publication Date (Web): 06 Jul 2020 Downloaded from pubs.acs.org on July 7, 2020

23. "Nano ZnO decorated ZnSnO₃ as efficient fillers to PVDF: toward simultaneous enhancement of energy storage density and efficiency and improved energy harvesting activity"

Abhishek Sasmal, Samar Kumar Medda, P. Sujatha Devi*, Shrabanee Sen*,
Nanoscale, **2020**, 12 (40), 20908-20921 (IF: 6.895)
DOI: 10.1039/D0NR02057E

24. "Enhanced dielectric, ferroelectric, energy storage and mechanical energy harvesting performance of ZnO–PVDF composites induced by MWCNTs as an additive third phase"

Shewli Pratihar, Abhishek Sasmal, Ankita Ghatak, Samar Kumar Medda,
Shrabanee Sen*, Soft Matter, **2021**, 17, 8483-95 (DOI: 10.1039/d1sm00854d). IF:
3.679

25. "A Preparative Approach of TiO₂-ZrO₂ Coating Using Aqueous-Based TiO₂ Precursor Useful for Light Reflective Application"

Suparna Bhattacharyya, Samar Kumar Medda* and Milan Kanti Naskar*
Trans. Ind. Ceram. Soc., **2021**, 80 (4), 227-233. (Accepted October 26, 2021)
<http://dx.doi.org/10.1080/0371750X.2021.2004237> (IF: 1.729)

26. "Mesoporous silica-based abrasion resistant antireflective (AR)-cum-hydrophobic coatings on textured solar cover glasses by spray coating technique"

Srikrishna Manna, Milan Kanti Naskar and Samar Kumar Medda*, RSC Mater. Adv. **2022**, **3**, 3208-3217 (Accepted February 18, 2022). DOI: **10.1039/D1MA01141C**.

(b) PUBLICATION IN CONFERENCE PROCEEDINGS:

"Gold nanoparticle doped SiO₂-TiO₂ coatings on ordinary glass; generation of different colour by changing matrix refractive index" S K. Medda, S. De and G. De, *Proc. Int. Conf. on Nano-materials: Synthesis, Characterisation and Application*, 2004, Kolkata, Eds. S. Bandyopadhyay et al., (Tata McGraw Hill, New Delhi) **2005**, pp. 485-489.

• **Poster preparation/presentation in the conference:**

- (xv) "Silica based mesoporous antireflective (AR) cum hydrophobic coatings on solar cover glass for domestic and agricultural applications" by Srikrishna Manna, Sitendu Mandal and Samar Kumar Medda in the 85th Annual Session of InCerS and International Virtual and Hybrid Conference on Advances in Ceramic and Cement Technology: Materials and Manufacturing (IvaCCT-**2021**).
- (xiv) "Investigations into the role of crystal and electronic structures in ammonia sensing properties of vanadium doped tin (iv) oxides" by Nirman chakraborty, Ambarish Sanyal, Sagnik, Das, Debdulal, Saha, S. K. Medda, Swastik Mondal in the 2nd Indian materials conclave and 31st Annual General Meeting of MRSI-Kolkata, 11-14th, February 11-14, 2020.
- (xiii) "Investigations on the role of crystal structure in ethanol sensing properties of vanadium doped oxides of tin (iv)". by Nirman chakraborty, Ambarish Sanyal, Sagnik, Das, Debdulal, Saha, S. K. Medda, Swastik Mondal in the *Young scientist colloquium, SINP, Kolkata* held during 16-17 September, **2019**.
- (xii) "ZrO₂ incorporated TiO₂ based transparent hard reflective coatings on glass useful as a building component" presented by Srikrishna Manna, Suparana Bhattacharyya and Samar Kumar Medda* in the "*International Conference on Complex and Functional Materials (ICCFM 2018)*" organized by S. N. Bose National Centre for Basic Sciences held during 13–16 December, **2018** at Viswa Bangla Convention Centre, Kolkata in celebration of 125th birth anniversary of S. N. Bose.
- (xi) "ZrO₂ and TiO₂-ZrO₂ based reflective coatings on glass substrates useful as building component" presented by Samar Kumar Medda, Srikrishna Manna, Suparna Bhattacharyya and Goutam De in the National Seminar on ".Innovative Process Technology for Sustainable Development (IPTSD-2018)" Jointly organized by Indian Institute of Chemical Engineers, Calcutta Regional Centre, JU Campus, Kolkata and CSIR-Central Glass and Ceramic Research Institute held during 23–24 February, **2018. Received 2nd best poster award.**
- (x) "Trimethylsilyl functionalized durable superhydrophobic ZnO–SiO₂ films on glass" by Indranee Das, Manish Kr Mishra, Samar K Medda and Goutam De* in 'Workshop on Indian Innovations in Materials Research: New Materials and Processes' held at

CSIR-CGCRI, Kolkata, India during June 25-27, **2015 (Received 3rd best oral presentation award).**

- (ix) “*Bioactive glass-nanosphere/nanofibre based composite coatings useful as excellent scaffolds for the growth of apatite and cells*” by Indranee Das¹, Samar K. Medda¹, Goutam De^{1*}, Susanne Fagerlund², Leena Hupa², Mervi A. Puska³ and Pekka K. Vallittu³ in an international conference (International Union of Materials Research Society – International Conference in Asia – 2013) organized by Indian Institute of Science Bangalore during Dec 16-20, **2013**.
- (viii) “Electrically conducting reduced graphine oxide bonded with organically modified SiO₂ composite black coating on glass” by K. Bhowmik, S. Pramanik, **S. K. Medda** and G. De at one day research Scholar’s day held on July 18, **2012** in CSIR-CGCRI, Kolkata.
- (vii) “Silica nanoparticles based superhydrophobic films with antireflection property on glass surface” by D. Goswami, **S. K. Medda** and G. De at International Symposium on Advances in Nanomaterials held during December 6-7, **2010** in CSIR-CGCRI, Kolkata.
- (vi) “Ag-TiO₂ nanoparticle Co-doped SiO₂ films on ZrO₂ barrier-coated glass substrates with antibacterial activity in ambient condition” by A. Mukhopadhyay, S. Basak, J. K. Das, **S. K. Medda**, K. Chattopadhyay and G. De at International Symposium on Advances in Nanomaterials held during December 6-7, **2010** in CSIR-CGCRI, Kolkata.
- (v) “Coloured hard-coatings on polycarbonate substrates using plasmon tuning of embedded Ag nanoparticles” by S. K. Medda, M. Mitra and G. De in the 20th Annual General Meeting, Materials Research Society of India (MRSI), held at Kolkata during February 8-10, **2009**.
- (iv) “Antireflective (AR) coatings on plastic lenses and sheets using inorganic-organic hybrid nanocomposite sols” by S. De, S. K. Medda and G. De in the international conference on ‘Nanoscience and Technology’ (CONSAT-2008) held at Chennai, Tamil Nadu, India, during February 27-29, **2008**.
- (iii) “Development of a technology ‘Anti-scratch coatings on plastic ophthalmic lenses and sheets’ using inorganic-organic hybrid nanocomposites and its commercialization” by S. K. Medda and G. De in the international conference on ‘Nanoscience and Technology’ (CONSAT-2008) held at Chennai, Tamil Nadu, India, during February 27-29, **2008**.

- (ii) "Inorganic-organic hybrid nanocomposite coatings for technological applications" by Goutam. De, **S. K. Medda**, S. De and S. Pal in the international conference on 'Leveraging Innovations & Inventions' held during October 15-16, **2007**, New Delhi.
- (i) "Au-nanoparticle incorporated SiO₂-ZrO₂ films: tuning of Au-plasmon absorption position" by **S. De**, G. De, and **S. K. Medda** (poster presented by Sucheta De) in the 17th Annual General Meeting, Theme Symposium: Bio, Biomedical & Natural Materials, held on February 13-15, **2006** organized by MRSI-Lucknow Chapter & University of Lucknow.

• **Invited talk /oral presentation:**

- (i) "Inorganic-organic nanocomposite based hard-coatings on plastics" in WEAR 2010 (National seminar on "Wear resistant surface and materials for industrial applications") held during August 7-8, 2010, Shibpur, Howrah.
- (ii) "Trimethylsilylated silica gel nanoparticles derived superhydrophobic films on glass surface" in MTIC-XIV (Symposium on "Modern Trends in Inorganic Chemistry", organised by School of Chemistry, University of Hyderabad during December 10-13, 2011).
- (iii) "Functional nanocomposite coatings: preparation, characterization and applications". (Ceramic nanocomposite coatings) in "One week Short Term Training Programme (STTP) on Analysis of Composite Materials" organized by Department of Chemical Engineering & Technology, BIT "Mesra during January 19-23, 2015.
- (iv) "Photocatalytic activity of TiO₂ coatings on ceramic tiles by Raman spectroscopy" in 'Workshop on Indian Innovations in Materials Research: New Materials and Processes' held at CSIR-CGCRI, Kolkata, India during June 25-27, 2015.
- (v) "Nanocomposite coatings usable for energy saving" in National Conference on Recent Developments in Nanoscience & Nanotechnology (NCRDNN 2019) held in Dr. Triguna Sen auditorium and TEQIP building, Jadavpur University during 29th - 31st January 2019.
- (vi) "ZrO₂ Incorporated aqueous TiO₂ based nanocomposite solar reflective coating for energy saving application" in the 12th Asia-Specific Microscopy Conference (APMC-2020) held at Hyderabad International Convention Centre (HICC), Hyderabad during **February 3-7, 2020**. (Page no. 476)

- (vii) “TiO₂-ZrO₂ based transparent hard nanocomposite coatings useful for energy saving application” in the National Seminar on “Propelling Innovations in Glass and Ceramics for Atmanirbhar Bharat” Organised by: Indian Ceramic Society, Kolkata, held at CSIR-CGCRI (virtual mode) during **December 10-12, 2020**.
- (viii) “Development of antireflective and hydrophobic coatings on different glass substrates for various applications” in the National Seminar on “Propelling Innovations in Glass and Ceramics for Atmanirbhar Bharat” Organised by: Indian Ceramic Society, Kolkata, held at CSIR-CGCRI (virtual mode) during December **10-12, 2020** presented by Srikrishna Manna, Sunirmal Jana, Sitendu Mandal, Sourav Nag, Shibasish Barik, Alok Roy Chowdhury, Sirshendu Ghorui and Samar Kumar Medda.