

Name: Dr. K. Murugan

Designation: Scientist – D

Qualification: M.E, PhD

Experience:

June 2000-July 2001	Technical co-ordinator Tekhtron India, Madurai 625011.
Aug 2001 – Feb 2003	M.E., Industrial Metallurgy Degree course PSG College of technology, Coimbatore 641004
Mar 2003 - Oct 2003	Junior Research Fellow PSG College of Technology, Coimbatore 641004.
Oct 2003 – Sep 2007	Scientist "B" ARCI, Hyderabad 500005.
Oct 2007 – Sep 2012	Scientist "C" ARCI, Hyderabad 500005.
Oct 2012 – till date	Scientist "D" ARCI, Hyderabad 500005

Research areas of interest:

Antireflective, anti-tarnishing, self cleaning, metal dielectric nano-composites thin film synthesis by sol-gel chemical methods for energy and environmental application. Thin films characterization of using advanced material characterization techniques such as ellipsometry and AFM.

List of Journal Publications

1. K. Murugan, J. Joardar, A. S. Gandhi, B. S. Murty, P. H. Borse, Photo-induced monomer/dimer kinetics in methylene blue degradation over doped and phase controlled nano-TiO₂ films. RSC. Adv. 6, (2016) 43563-43573
2. S. Pavithra, N. Rajender, M.V. Reddy, K.Murugan, K.I. Suresh. Effect of Graphene Oxide (GO) size and strcture on synthesis and optoelectronic properties of hybrid GO-poly (3-Hexylthiophene) nanocomposites. Ploym. Compos- 2015. DOI 10.1002/pc.23646.
3. K. Murugan, R. Subasri, T. N. Rao, Ashutosh S. Gandhi, B.S. Murty. Synthesis, characterization and demonstration of self-cleaning TiO₂ coatings on glass and glazed ceramic tiles. (Prog. Org. Coat 76 (2013) 1756-1760.
4. S. Mahendra kumar, K. Murugan, S.B. Chandrasekhar, Neha Hebalkar, M. Krishna, B.S. Satyanarayna, G. Madras, Synthesis and characterization of nano silicon and

- titanium nitride powders using atmospheric microwave plasma technique, J. Chem. Sci. 124 (2012) 557–563.
5. K. Murugan, S.B. Chandrasekhar, J. Joardar, Nanostructured α/β -tungsten by reduction of WO₃ under microwave plasma, Int. Journal of Refractory Metals and Hard Materials 29 (2011) 128–133.
 6. K. Murugan, T. N. Rao, K. Radha, Hina Gokhale, Microwave Plasma Process Optimization to Produce Nano Titania through Design of Experiments, Materials and Manufacturing Processes 26 (2011) 1-10
 7. K. Murugan, Tata N. Rao, G.V.N. Rao, A. S. Gandhi, B.S. Murty. Effect of dehydration rate on non-hydrolytic TiO₂ thin film processing: Structure, Optical and Photocatalytic Performance Studies. Materials Chemistry and Physics 129 (2011) 810-815.
 8. V. Udhayabanu, K. R. Ravi, K. Murugan, D. Sivaprahasam and B.S. Murty, Development of Ni-Al₂O₃ in-situ Nanocomposite by Reactive Milling and Spark Plasma Sintering, Metallurgical and materials transaction A 42 A (7) (2011) 2085–2093.
 9. K. Murugan, Tata N. Rao, Ashutosh S. Gandhi, B.S. Murty, Effect of aggregation of methylene blue dye on TiO₂ surface in self-cleaning studies. Catalysis Communications 11 (2010) 518–521.
 10. R. Subasri, M. Tripathi, K. Murugan, J. Revathi, G.V.N. Rao, T.N. Rao, Investigations on the photocatalytic activity of sol-gel derived plain and Fe³⁺/Nb⁵⁺-doped titania coatings on glass substrates. Materials Chemistry and Physics 124 (2010) 63–68.
 11. Revathi Janardhanan, Murugan Karuppaiah, Neha Hebalkar, Tata Narsinga Rao, Synthesis and surface chemistry of nano silver particles. Polyhedron 28 (2009) 2522–2530.

List of Patents:

1. A process for the preparation of nano silver and nano silver coated ceramic powders by K. Murugan, T.N Rao filed as 2786/DEL/2005 dt 19/10/2005 (also filed in Indonesia, Srilanka, Bangladesh and South Africa).
2. An improved process for the preparation of nano silver-coated ceramic candle filters by J. Revathi, K. Murugan, T. N. Rao (1249/DEL/2011) dt 28/04/2011.
3. Indian patent application titled "An improved process to make coating compositions for transparent, UV blocking coatings on glass and a process of coating the same" by R. Subasri, Nabormi Mukhopadhyay and K. Murugan: filed as 1152/DEL/2014 dt 29-04-14.
4. Indian patent application entitled "An improved process for obtaining a transparent, protective coating on bi-aspheric / planoconvex lenses made of optical grade plastics

for use in indirect ophthalmoscopy", invented by R. Subasri, L. Sowntharya, K. Murugan filed as 3072/DEL/2013 on 17/10/13.

5. A method of preparation of anti-tarnishing organic-inorganic hybrid sol-gel and coating the same by K.Murugan, R. Subasri, G.Padmanabham: field as 2049/DEL/2015 dt 7/7/2015

Conference proceedings:

1. Titanium interdiffusion coating on austenitic stainless steel through molten salt electrolysis route for critical application in nuclear industries. P.Gopalakrishnan, U.Kamachimudali, P.sundarapandian, K.Murugan, K.Swaminathan, S.S.Ramakrishnan, H.S.Khatak, and Baldev Raj. ASTRA Nov 3-6 2003 P 694-699.
2. Surface hardening of Ti-6Al-4V alloy by boronising, K.Thillairajan, P. Sundarapandian, K.Murugan, P.Gopalakrishnan, P.C.Angelo, S.S..Ramakrishnan and P.Shankar. Advances in Materials & Processes for Industrial Applications & Materials Show 2003, Sep 25 – 27, Technical Volume, P69-73.
3. Modification of Boronised Case using Laser , Plasma and Induction Heating, M.sundar, K.Thillairajan, K.Murugan, P.Gopalakrishnan and S.S.Ramakrishnan, Power Beams and Material Processing 2002, P762-764.

Awards & Honors:

1. Platinum best group awards at the Asia Nanotech Camp 2011, August, 15-28. Seoul, South Korea, Title: Sustainable Nanotechnology for saving water.
2. Best poster award in International conference and Exhibition on heat treatment and surface engineering 2013 titled on "Self cleaning function test on nano TiO₂ coated glasses and glazed ceramic tiles". May 16-18, 2013 Chennai Trade Centre, Chennai, India.

Lecture delivered:

1. a) Synthesis, characterization and demonstration of self-cleaning TiO₂ coatings on glass and glazed ceramic tiles In Coating science international 2012 (CoSI-2012) Noordwijk, The Netherlands
2. b) Nano-titania powder synthesis by microwave plasma process and the influence of process parameters on powder characteristics" in International conference on Nano 2006, IISc Bangalore.

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