

Name

Dr. K. Murugan

**Designation**

Scientist – D

Qualification

M.E (Industrial Metallurgy), Ph.D. (Materials Science)

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 2007 – 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 and ellipsometry data analysis.

List of journal publications

1. 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 (2013)
<http://dx.doi.org/10.1016/j.progcoat.2013.02.012>)

2. 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.
3. K. Murugan, S.B. Chandrasekhar, J. Joardar, Nanostructured α/β -tungsten by reduction of WO_3 under microwave plasma, *Int. Journal of Refractory Metals and Hard Materials* 29 (2011) 128–133.
4. 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
5. K. Murugan, Tata N. Rao, G.V.N. Rao, A. S. Gandhi, B.S. Murty. Effect of dehydration rate on non-hydrolytic TiO_2 thin film processing: Structure, Optical and Photocatalytic Performance Studies. *Materials Chemistry and Physics* 129 (2011) 810-815.
6. V. Udhayabanu, K. R. Ravi, K. Murugan, D. Sivaprahasam and B.S. Murty, Development of $Ni-Al_2O_3$ *in-situ* Nanocomposite by Reactive Milling and Spark Plasma Sintering, *Metallurgical and materials transaction A* 42 A (7) (2011) 2085–2093.
7. K. Murugan, Tata N. Rao, Ashutosh S. Gandhi, B.S. Murty, Effect of aggregation of methylene blue dye on TiO_2 surface in self-cleaning studies. *Catalysis Communications* 11 (2010) 518–521.
8. 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 Fe^{3+}/Nb^{5+} -doped titania coatings on glass substrates. *Materials Chemistry and Physics* 124 (2010) 63–68.
9. 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 F.No: 2786/DEL/2005 (also filed in Indonesia, Srilanka, Bangladesh and South Africa).
2. An improved process for the preparation of nano silver-coated ceramic candle filters (1249/DEL/2011) .

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.

Lectures delivered

1. 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. 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.

Awards and 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.

Contact information

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