

Name:

Mr. Kalidindi Ramachandra Soma Raju

Qualification:

M.E (Mechanical Engineering)

Designation:

Technical Officer "E"

**Experience:**

28 years. (3 years in private industry and for the last 25 years in ARCI)

Research areas of interest:

Surface engineering involving sol-gel coatings, electrospark coatings, microarc oxidation coatings and thermal spray such as detonation spray coatings.

List of journal publications

1. A.B. Rybalko **K.R.C.Soma Raju**, et.al "Electrical Characteristics Influence on Coating Properties using Elitron type Electrospark Alloying Unit" published in Electronic materials, Russian Journal 2002.
2. L. Ramakrishna, **K. R. C. Somaraju** and G. Sundararajan, "The Tribological Performance of Ultra-Hard Ceramic Composite Coatings Obtained through Microarc Oxidation", Surface & Coatings Technology, Vol.163-164, p 484-490, 2003.
3. **K.R.C. Soma Raju**, N.H. Faisal, D. Srinivasa Rao, S.V. Joshi and G. Sundararajan, "Electro-Spark Coatings for Enhanced Performance of Twist Drills" Surface & Coatings Technology, Vol. 202, p1636-1644, 2008.
4. R. Dineshrama, K. Jayaraj , L. Vedaprakash , Krupa Ratnam , R. Subasrib, **K.R.C. Somaraju**, S.V. Joshib, R. Venkatesan "Biofouling studies on nanoparticle-based metal oxide coatings on glass coupons exposed to marine environment" published in the Journal of Colloids and surfaces B: Biointerfaces, Volume 74, Issue 1, 1 November 2009, Pages 75-83.
5. **K.R.C.Soma Raju**, "Electrosaprk coatings" chapter in "Surface Engineering", (eds.) D. Srinivasa Rao, Srikanth V. Joshi, Centre for Science and Technology of the Non-aligned and other Developing Countries, NAM S&T S & T Centre, 2010, P286-337.

6. Gururaj S.T., R. Subasri, **K.R.C. Soma Raju** and G. Padmanabham, “Effect of Plasma pretreatment on adhesion and mechanical properties of UV-curable coatings on Plastics” *Applied Surface Science* 257 (2011) 4360–4364.
7. R. Subasri, C.S. Madhav, **K.R.C. Somaraju** and G. Padmanabham, “Decorative Hydrophobic Sol-gel Coatings densified using near-infrared radiation, *Surface & Coatings Technology* 206(2012) 2417-2421.
8. **K.R.C. Soma Raju**, L. Sowntharya, S. Lavanya and R. Subasri (2012) “Effect of plasma pretreatment on adhesion and mechanical properties of sol-gel nanocomposite coatings on polycarbonate”, *Composite Interfaces*, 19:3-4, 259-270.
9. N. Kumar, A. Jyothirmayi, **K.R.C.Soma Raju**, R. Subasri. “Effect of functional groups (methyl, phenyl) on organic-inorganic hybrid sol-gel silica coatings on surface modified SS 316”. *Ceramics International* 38 (2012) 6565-6572.
10. L. Sowntharya, G. Ravi Chandra, **K.R.C. Soma Raju**, R. Subasri. “Effect of addition of surface modified nanosilica into silica-zirconia hybrid sol-gel matrix”. *Ceramics International* 39 (2013) 4245-4252.
11. K. Jeevajothi, R.Subasri, **K.R.C.Soma Raju**, “Transparent, non-fluorinated, hydrophobic silica coatings with improved mechanical properties”, *Ceramics International* 39 (2013) 2111–2116.
12. N. Kumar, A. Jyothirmayi, **K. R. C. Soma Raju**, V. Uma and **R. Subasri** (2013): One Step Anodization/Sol-Gel deposition of Ce³⁺-doped silica-zirconia Self-Healing Coating on Aluminum, *ISRN Corrosion*, article id 424805, 8 pages, <http://dx.doi.org/10.1155/2013/424805> ISRN Corrosion, Published
13. R. Subasri, G. Reethika and **K.R.C. Soma Raju** (2013): Multifunctional Sol-Gel Coatings for Protection of Wood, *Wood Material Science and Engineering* (in press), 8(4), (2013) 226-233 DOI: 10.1080/17480272.2013.834967, <http://dx.doi.org/10.1080/17480272.2013.834967>.
14. **K.R.C. Soma Raju** and R. Subasri, “Sol-Gel Nanocomposite Hard Coatings” chapter in “Anti-Abrasive Nanocoatings: Current and future applications”, edited by Mahmood Aliofkhazraei, Woodhead Publishing Limited preparing for Chandos publishing, TBAC Business Centre, Avenue 4, Station Lane, Witney, Oxford OX28 4BN. Published in 2015, p 105-132..

15. Priya A. Mathews, **Soma Raju R.C. Kalidindi**, Sanjay Bhardwaj and Raghavan , Subasri “Sol-Gel Functional Coatings for Solar Thermal Applications: A Review of Recent Patent Literature”, *Recent Patents on Materials Science* 2013, Bentham Science Publishers, Vol6, No 3, 195-213.
16. R. Subasri, **K.R.C. Soma Raju**, D.S. Reddy, Neha Y. Hebalkar, G. Padmanabham, “Sol-gel Derived Solar Selective Coatings on SS 321 Substrates for Solar Thermal Applications”, *Thin Solid Films* 598 (2016) 46-53.
17. **K.R.C. Soma Raju**, R. Subasri, “Sol-Gel Nanocomposite Coatings for Solar Thermal Applications” invited review article in a special issue on Nanotechnology for Sustainable Energy of Nanotech Insights brought by CKMNT, Hyderabad, volume 7, July and October 2016, P29-32.
18. Swapnil H. Adsul, **K. R. C. Soma Raju**, B. V. Sarada, Shirish H. Sonawane, R. Subasri “Evaluation of self-healing properties of inhibitor loaded nanoclay-based anticorrosive coatings on magnesium alloy AZ91D” *Journal of Magnesium and Alloys* 6 (2018) 299-308.
19. R. Subasri, **K.R.C. Soma Raju**, and K. Samba Sivudu, “Applications of Sol-Gel Coatings: Past, Present and Future” a book chapter for Handbook of Mod. Coating Tech.: Apps, V4, Elsevier publishers-Accepted for publication 2018.
20. N.V. Gaponenko, P.A. Kholov, K.S. Sukalin, T.Ф. Raichenok, S.A. Tikhomirov, R. Subasri, **K.R.S. Soma Raju**, A.V. Mudriy, “Optical properties of multilayered film structures BaTiO₃ / SiO₂, synthesized by sol-gel method” *DOKLADY BGUIR (Physics of Solid State)* 61, (2019) 397–401. A Russian Journal.
21. R. Subasri, **K.R.C. Soma Raju**, D.S. Reddy, A. Jyothirmayi, Vijaykumar S. Ijeri, Om Prakash, Stephen P. Gaydos, Environmental friendly Zn-Al Layered Double Hydroxide (LDH) based Sol-Gel Corrosion Protection Coatings on AA 2024-T3, *J. Coat Technol. Res.* (Accepted)
22. R. Subasri, D. S. Reddy, **K. R.C. Soma Raju**, K. S. Rao, P. Kholov, N. Gaponenko, “Sol-Gel Derived Ba/SrTiO₃-MgF₂ Solar Control Coating Stack on Glass for Architectural and Automobile Applications”, Special issue of Research on Chemical Intermediates (2019)- accepted

List of patents

1. "A Device for controlling the On and Off time of the metal oxide semiconductor field effect transistor (Mosfet), a device for spark coating the surfaces of metal work piece incorporating the said control device and a method of coating metal surfaces using the said device."

Patent number: 1610/DEL/2005 Date: 21-06-2005 Indian

K.R.C. Soma Raju, Ch. Sambasiva Rao, Ribaalko Alexander Vasilyevich

2. "Device for controlling the on & off time of the metal oxide semiconductor field effect transistor (Mosfet), a device for spark coating the surfaces of metal work piece incorporating the said control device and a method of coating metal surfaces using the said device."

Granted as 2011/0290764 A1 on 01-12-2011US

K.R.C. Soma Raju, Ch. Sambasiva Rao, Ribaalko Alexander Vasilyevich

3. "An Improved Composition for Coating Metallic Surfaces and a Process for Coating such surfaces using the Composition"

Patent Appl. number: 620/DEL/2010 Date: 17-3-2010 Indian

Granted as 290592 on 14/12/2017

Kalidindi Rama Chandra Soma Raju, Raghavan Subasri, Adduru Jyothirmayi, Gadhe Padmanabham

4. "Improved Scratch And Abrasion Resistant Compositions For Coating Plastic Surfaces, A Process For Their Preparation And A Process For Coating Using The Compositions"

Patent Appl. number: 2427/DEL/2010 Date: 12-10-2010 Indian

Granted as 295221 on 28/03/2018

Gururaj Telasang, **Kalidindi Rama Chandra Soma Raju**, Raghavan Subasri, Gadhe Padmanabham

5. "An improved abrasion resistant and hydrophobic composition for coating plastic surfaces and a process for its preparation"

Patent number: 1278/ DEL/ 2011 Date: 02-05-2011 Indian

Kalidindi Rama Chandra Soma Raju, Dendi Sreenivas Reddy, Raghavan Subasri, Gadhe Admanabham
Granted as 297072 on 24-05-18

6. "An improved composition for solar selective coatings on metallic surfaces and a process for its preparation and a process for coating using the compositions"

Patent number: 3324/DEL/2011 Date: 22-11-2011 Indian

Kalidindi Rama Chandra Soma Raju, Dendi Sreenivas Reddy, Raghavan Subasri, Gadhe Admanabham

7. "An improved composition for coating anodizing metal surfaces and a process of coating the same"

Patent number: 1310/DEL/2013, Date: 3-5-2013 Indian

Raghavan Subasri, Nirmal Kumar, **Kalidindi Rama Chandra Soma Raju**, Venkateshwaran Uma

8. US Patent application titled "Sol-gel coating composition including corrosion inhibitor encapsulated layered metal phosphates and related process"

US 15/431506 dtd 13-02-17

Vijaykumar S. Ijeri, Om Prakash, S. Gaydos, R. Subasri, **K.R.C. Soma Raju**, D.S. Reddy

9. US Patent application titled "Sol-gel coating compositions and related processes"

US 15/231617 dtd 08-08-16

Vijaykumar S. Ijeri, Om Prakash, S. Gaydos, R. Subasri, **K.R.C. Soma Raju**, D.S. Reddy

10. US Patent application titled "Sol-gel coating compositions including corrosion-inhibitor encapsulated layered double hydroxides and related processes"

US 15/231654 dtd 08-08-16

Vijaykumar S. Ijeri, Om Prakash, S. Gaydos, R. Subasri, **K.R.C. Soma Raju**, D.S. Reddy

Granted as US 10,246,593 B2 on 02-04-19 and EP 3272816 B1 on 02-01-19

11. US Patent application titled "Corrosion inhibitor incorporated layered double hydroxide and sol-gel coating compositions and related processes"

US 15/231668 dtd 08-08-16

Vijaykumar S. Ijeri, Om Prakash, S. Gaydos, R. Subasri, **K.R.C. Soma Raju**, D.S. Reddy

Granted as US 10,246,594 B2 on 02-04-19

12. Indian patent application titled “Antimicrobial aqueous based sol-gel composition for coating on substrate and process of preparing the same”

Filed as 201811033620 on 06-09-18

D.S. Reddy, **K.R.C. Soma Raju**, R. Subasri.

13. Indian patent application titled “Process for preparing durable solar control coatings on glass substrates”

filed as 201811024034 dtd 27-06-18

R. Subasri. D.S. Reddy, **K.R.C. Soma Raju**, K.S. Rao.

Conference presentations and publication in proceedings

1. Debajyothi Sen, **K. R. C. Somaraju**, D. Srinivasa Rao and G. Sundararajan, “Influence of FEP Additions on the Properties of WC-Co Coatings Obtained by Detonation Spray Coating”, Proceedings of Surface Modifications Technologies SMT-XIII, (eds.) T S Sudarshan, K A Khor and M Jeandin, Singapore, p 71-81, 1999.
2. G D. Srinivasa Rao, Debajyothi Sen, **K. R. C. Somaraju**, S Ravi Kumar, N. Ravi and G. Sundararajan, “The Influence of Powder Particle Velocity and Temperature on the Properties of Cr₃C₂-25 NiCr Coating Obtained by Detonation–Gun”, Proceedings of the 15th International Thermal Spray Conference, France, p 385-393, 1998
3. G. Sundararajan, D. Srinivasa Rao, Debajyothi Sen and **K. R. C. Somaraju**, “Tribological Behaviour of Thermal Sprayed Coatings”, Proceedings of Surface Modification Technologies XI, (eds.) T S Sudarshan, K A Khor and M Jeandin, France, p 872-886, 1998
4. G. Sundararajan, **K. R. C. Somaraju**, and D. Srinivasa Rao, “The Prospects for the Development of High Performance Alumina Coatings using Detonation Gun Technique”, Proceedings of Surface Modification Technologies X, (eds.) T S Sudarshan, K A Khor and M Jeandin, Singapore, p 369-384, 1997.
5. **K. R. C. Somaraju**, D. Srinivasa Rao, G. Sivakumar, Debajyothi Sen, G. V. Narasimha Rao and G. Sundararajan, “The Influence of Powder Characteristics on

the Properties of Detonation Sprayed Cr₃C₂-25NiCr Coatings”, Proceedings of 2nd International Thermal Spray Conference (ITSC), (eds.) CC Berndt , p 309-315, 2000.

6. P Saravanan, **K. R. C. Somaraju**, D. Srinivasa Rao, V Selvarajan, Shrikant V. Joshi and G. Sundararajan, “A Comparative Study of the Performance of Two Diverse Detonation Spray Systems”, Proceedings of Surface Modifications Technologies SMT-XIII, (eds.) T S Sudarshan, K A Khor and M Jeandin, Singapore, p 195-205, 1999.
7. **K.R.C.Soma Raju** “Electrospark Coatings” presented at a 6 day workshop SERC School on Surface engineering and published in a volume Surface Engineering: Process and Applications, 2003 at ARCI, Hyderabad.
8. **K.R.C.Soma Raju** “Fundamentals and Applications of Electrospark Coatings” presented at a 3 day national workshop on “Surface modification & its Applications in Industry-Surfmod” Organized by Dept. of Mechanical Engg. Muffakkam Jah College of Engg. & Tech. Hyderabad and published in proceedings, 2003.
9. **K.R.C.Soma Raju** “Principles and Applications of ESC technology” delivered at SERC-NAM-School on Surface Engineering July 2005 organised by ARCI, Hyderabad.
10. **K.R.C.Soma Raju**, G.Sundararajan et.al “Wear Performance of Hardfacing Materials Deposited Using ESC Technique” delivered at IIT-NMD-ATM 2005, conducted by Indian Institute of Metals, Chennai.
11. **K.R.C. Somaraju**, R. Subasri, A. Jyothirmayi, T. Gururaj, G. Padmanabham “UV-Curable Primer-cum-Paint System for Mild Steels based on Sol-Gel Coating Technology” Mobility Congress 2009, Society for Automotive Engineers SAEINDIA, 13-15 Dec. 2009, Chennai.
12. **K.R.C. Somaraju**, A. Jyothirmayi, D.S. Reddy, R. Subasri and G. Padmanabham, “Investigations on Mechanical and Corrosion Protection Properties of Hybrid Sol-Gel Coatings on J4 Grade Stainless Steels”, International Conference on Advanced Ceramics SGPAC-2009, IGCAR, Kalpakkam, Chennai, Oct. 11-14, 2009. P244-247, Proceedings of the processing for advanced ceramics.
13. **K.R.C. Soma Raju**, A. Jyothirmayi, L. Rama Krishna and R. Subasri, Corrosion Behaviour of Anodized and Sol-Gel Duplex Coatings on Aluminum, International Conference & Exhibition on Corrosion CORCON 2015, organized by NACE

International Gateway India Section, 19th to 21st November 2015 at Chennai Trade Centre and published in its proceedings as SI no: CL-09.

14. **K.R.C.Soma Raju**, D. Rama Supriya, D.Sreenivas Reddy, A. Jyothirmayi and R. Subasri, Investigations on Corrosion Resistance of Sol-Gel Derived Nanocomposite Coatings on Stainless Steel, Eighteenth National Congress on Corrosion Control (Silver Jubilee Year) 24-26 February, 2016, Hotel Green Park, Chennai