

Curriculum Vitae

Dr. Senthilkumar Obuliraj

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EDUCATION

Degree	University	Period
PhD (Science and Humanities)	ANNA UNIVERSITY, India	June 2000 – Nov 2005
M.Sc. (Chemistry)	UNIVERSITY OF MADRAS, India	June 1996 – Apr 1998
B.Sc. (Chemistry)	UNIVERSITY OF MADRAS, India	June 1993 –Mar 1996

PROFESSIONAL EXPERIENCE

Period of work	Position
Jan 2023 – till date	Professor & Head in Chemistry RAMCO INSTITUTE OF TECHNOLOGY Rajapalayam, India
June 2018 – December 2022	Associate Professor& Head in Chemistry RAMCO INSTITUTE OF TECHNOLOGY Rajapalayam, India
Apr 2013 – May 2018	Assistant Professor in Chemistry RAMCO INSTITUTE OF TECHNOLOGY Rajapalayam, India
Mar 2003 – Nov 2005	Senior Research Fellow (CSIR-NET-SRF) Crystal Growth Centre, ANNA UNIVERSITY Chennai, India
Apr 2000 – Mar 2003	Junior Research Fellow (CSIR-NET-JRF) Crystal Growth Centre, ANNA UNIVERSITY Chennai, India

POST DOCTORAL EXPERIENCE

Period of work	Position
Apr 2011 – Dec 2012	Researcher Research Centre for Innovative Nanobio Device NAGOYA UNIVERSITY, Japan

Oct 2010 – Mar 2011	Researcher Life and Coordination Complex Mol. Science INSTITUTE OF MOLECULAR SCIENCE, Japan
Dec 2005 – Sep 2010	Researcher Research Project Promotion Institute SHIMANE UNIVERSITY, Japan

CURRENT AREAS OF RESEARCH INTEREST

- ✓ ZnO & TiO₂ nanoparticles
- ✓ ZnS, ZnSe & ZnO by chemical vapor deposition
- ✓ Planar Patch Clamp Biosensors
- ✓ Ag and Cu nano metals
- ✓ Waste water treatment

RESEARCH ACCOMPLISHMENTS

Total Research Publications - 27

h-index – 13

i10 index – 14

Doctoral students guiding – 1

<https://scholar.google.com/citations?hl=en&user=KXnMFDMAAAAJ>

PATENT

1. Tsuneo Urisu, Zhi-hong Wang, Hidetaka Uno, **Senthil Kumar Obuliraj**, Yasutaka Nagaoka “Planar Patch Clamp Device, Electrodes for said device and cell ion channel current measurement method” Application granted 2021-12-29, EP2801820B1
2. B. Ramkumar, N. Revathi, C. Munichelvam, **O. Senthilkumar** “Modest Emancipation Tactics for Glasses,” Indian Patent, 202141045669A, Published on 19.11.2021
3. **O. Senthilkumar**, C. Revathi, S. Soundeswaran, Gaurav Singh, V. Jagadeesh Babu, Manda Saritha, R Saravanan, Dhiren Pandit, I Niyas Ahmed, Novel Manufacturing of phyto-nanomaterials for waste water remediation, 20224104742A, Published on 16.09.2022.
4. S. Jeyanthi, A. Arunkumar, S. Kannan, G. Kanthimathi, **O. Senthilkumar**, Multi terminal Corrosion Fee Service Line Clamp, Patent no. 516892, 202141004396, granted on 28.02.24

PUBLICATIONS

1. C. Revathi, S. Soundeswaran and **O. Senthilkumar**, Synthesis and Characterization of Dibromobis (dimethyl glyoxime)cobalt(II) Complexes, AIP CONFERENCE PROCEEDINGS 2901 (2023) 020004.
2. N Revathi, M Sankarganesh, JD Raja, J Rajakanna, **O Senthilkumar**, Green synthesis of *Plectranthus amboinicus* leaf extract incorporated fine-tuned manganese dioxide nanoparticles: antimicrobial and antioxidant activity, INORGANIC CHEMISTRY COMMUNICATIONS, 154 (2023) 110935.

3. C Revathi, **O Senthilkumar**, S Soundeswaran, Growth of pyridinecarbothioamides and single crystal XRD studies, MATERIALS TODAY: PROCEEDINGS 80(2023)695-699
4. G Kanthimathi, **O Senthilkumar**, C Sankar, B. S. Prathibha and S. M. Senthil Kumar. Green Synthesis of Silver Nanoparticles using VitexNegundo Extracts and their Application in the Effluent Treatment of Cracker Industries, JOURNAL OF PHYSICS: CONFERENCE SERIES 2070(1)(2021) 012034.
5. **O Senthilkumar**, K Senthilkumar, C Revathi, S Morito, T Ohba, M Sato and Y Fujita. Chitosan encapsulated ZnO nanoparticles for labeling applications, JOURNAL OF PHYSICS: CONFERENCE SERIES, 1706 (2020) 012016
6. Noriko Takada, Masaki Aoyama, MitsukazuSuzui, Yosuke Hachisu, Hitoshi Ohmori, Zhi-Hong Wang, Hidetaka Uno, **Obuliraj Senthil Kumar**, Yasutaka Nagaoka, Miho Goto-Satoh, Tsuneo Urisu. Microfabrication of PMMA sensor chips for an incubation-type planar patch clamp,INTERNATIONAL JOURNAL OF NANOMANUFACTURING 10 (2014) 281-294
7. Hidetaka Uno, Zhi-hong Wang, Ysutaka Nagaoka, Noriko Takada, **Senthilkumar Obuliraj**, Kei Kobayashi, Toru Ishizuka, HiromuYawo, Yukio Komatsu, Tsuneo Urisu. Improvements in the performance of an incubation-type planar patchclamp biosensor using a salt bridge electrode and a plastic (PMMA) substrate, SENSORS AND ACTUATORS B 193 (2014) 660– 668
- 8.**Senthilkumar Obuliraj**, Noriko Takada, Zhi-Hong Wang, Kei Kobayashi, Yasutaka Nagaoka, Jongduk Kim, Mineharu Suzuki, Yoshito Hirose,Yuichi Utsumi and Tsuneo Urisu. Surface characteristics and electrical properties of PMMA chipsfor incubation-type planar-patch-clamp biosensors COLLOIDS AND SURFACES B: BIOINTERFACES 116 (2014) 193– 200.
9. K. Senthilkumar, **O. Senthilkumar**,S.Morito, T.Ohba and Y.Fujita. Synthesis of Zinc Oxide nanoparticles by DC Arc Dusty Plasma, J. NANOPART. RES 14(2012)1205
10. Ben E. Urban, Jie Lin, **Os Kumar**, Kasilingam Senthilkumar, Yasuhisa Fujita and Arup Neogi. Optimization of nonlinear optical properties of ZnO micro and nanocrystals for Biophotonics, OPTICAL MATERIAL EXPRESS, 1(2011)658-669.
11. K. Senthilkumar, M .Tokunaga, H. Okamoto, **O. Senthilkumar**, and Y. Fujita.Hydrogen related defect complexes in ZnO nanoparticles, APPL. PHYS. LETT., 97(2010) 091907 -091909.
12. K. Senthilkumar, M. Tokunaga, H. Okamoto, **O. Senthilkumar**, J. Lin, B. Urban, A. Neogi, Y. Fujita. Multiphonon scattering and non-radiative decay in ZnO nanoparticles, PHYS. STAT. SOL. 7(2010)1586-1588.
13. K. Senthilkumar, H. Okamoto, M. Tokunaga, **O. Senthilkumar**, and Y. Fujita. Deposition of Nanoparticle-Aggregated ZnO thin films by drop coating method, JAP. J. APPL. PHYS. 48(2009)06FF05-1-06FF05-3.
14. K. Senthilkumar, **O Senthilkumar**, K. Yamauchi, M. Sato, S. Morito, T. Ohba, M. Nakamura and Y. Fujita. Preparation of ZnO nanoparticles for bio-imaging applications, PHYS. STAT. SOL.(b), 246(2009)885-888.
15. N. Nishimoto, T. Yamamae, T. Kaku, Y.Matsuo, K. Senthilkumar, **O. Senthilkumar**, J. Okamoto, Y. Yamada, S. Kubo and Y. Fujita. Growth of Ga-doped ZnO by MOVPE using diisopropylzinc and tertiary butanol, J. CRYSTAL GROWTH, 310(2008)5003-5006.

16. **O. Senthilkumar**, K. Yamauchi, K. Senthilkumar, T. Yamamae, N. Nishimoto and Y. Fujita. UV-Blue Light Emission from ZnO Nanoparticle, J. KOREAN PHYS. SOC., 53(2008)46-49.
17. N. Nishimoto, T. Yamamae, K. Senthilkumar, **O. Senthilkumar** and Y. Fujita. Growth of ZnO thin films by MOCVD with high speed rotating disk reactor, J. KOREAN PHYS. SOC., 53(2008)2951-2954.
18. **O. Senthil Kumar**, Eisuke Watanabe, Ryuichi Nakai, Naoki Nishimoto and Yasuhisa Fujita. Growth of nitrogen-doped ZnO films by MOVPE using diisopropylzinc and tertiary-Butanol, J. CRYSTAL GROWTH, 298(2007)491-494.
19. **O.S. Kumar**, K.B. Ameen, S. Soundeswaran, T. Rajsekharan and R. Dhanasekaran Growth of ZnSe:Mn nanocrystals from vapor phase, J. RARE EARTHS, 24(2006)111-114.
20. S. Soundeswaran, **O. Senthil Kumar**, S. MoorthyBabu, P. Ramasamy and R. Dhanasekaran Influence of ultrasonification on the CdS thin film deposition by photochemical Deposition Technique, MATER. LETT., 59(2005)1795-1800.
21. **O. Senthil Kumar**, S. Soundeswaran, D. Kabi Raj, D.K Avasthi and R. Dhanasekaran. Effect of heat treatment and Si ion irradiation on $\text{ZnS}_x\text{Se}_{1-x}$ single crystals by CVT Method, J. CRYST. GROWTH, 275(2005)567-570.
22. S. Soundeswaran, **O. Senthil Kumar**, P. Ramasamy, D. Kabiraj, D.K. Avasthi and R. Dhanasekaran. Effect of Si ion irradiation on polycrystalline CdS thin film grown from novel Photochemical deposition techniques, PHYSICA B, 355(2005)222-230.
23. **O. Senthil Kumar**, S. Soundeswaran and R. Dhanasekaran. Nucleation kinetics and growth of $\text{ZnS}_x\text{Se}_{(1-x)}$ single crystals from vapour phase, MATER. CHEM. PHYS., 87(2004)75-80.
24. S. Soundeswaran, **O. Senthil Kumar** and R. Dhanasekaran. Effect of ammonium sulphate on chemical bath deposition of CdS thin films, MATER. LETT., 58(2004)2381-2385.
25. S. Soundeswaran, **O. Senthil Kumar**, R. Dhanasekaran, P. Ramasamy, R. Kumaresen and M. Ichimura. Growth of ZnSe thin films by electrocrystallization technique, MATER. CHEM. PHYS. 82(2003)268-272.
26. **O. Senthil Kumar**, S. Soundeswaran and R. Dhanasekaran. Thermodynamic calculations and growth of ZnSe single crystals by chemical vapour transport technique, CRYST. GROWTH AND DESIGN, 2(2002)585-589.

MANUSCRIPTS UNDER PROCESS

1. C. Revathi, S. Soundeswaran, **O. Senthilkumar**, Sridevi and M. Muralisankar, Bioactive Components in the Functional Foods and their Health Benefits, a specific mention to Covid-19, ES Food & Agroforestry. (under revision)

BOOK CHAPTERS

1. **O. Senthilkumar**, G. Kanthimathi, C. Revathi and S. Soundeswaran published a book chapter entitled 'Current Trends in Sodium Alginate Based Nanocomposites for Wastewater Treatment',

Recent Innovations In Engineering, Science and Management (RIESM),912-936 Association of Global Academicians and Researchers Publications,(ISBN : 978-81-950236-2-2).

2. G.Kanthimathi, M.VenkateshPerumal and **O.Senthilkumar** published a book chapter entitled 'Drinking Water Contaminants and Health Implications', Scieng Publications, 2021.

3. C. Revathi, **O. Senthilkumar** and S. Soundeswaran, published a book chapter entitled 'Solid Waste Management', AkiNik Publications, 2021 (ISBN: 978-93-91538-26-2)

4. C. Revathi, **O. Senthilkumar** and S. Soundeswaran, published a book chapter entitled, 'Biomedical Waste and Their Disposal Techniques', AkiNik Publications, 2022 (ISBN: 978-93-5570-183-1)

5. M. Boopalan, C.Revathi, **O.Senthilkumar**, Sasikumar Arumugam, 'Role of fabricated anisotropic graphene and nanotube-based electrochemical sensors for food, crop damage surveillance, and management' in the Book Carbon-Based Nanomaterials in Biosystems, Elsevier. (Accepted)

6. M.Muralisankar, S.Soundeswaran, Pandian BothiRaja, **Senthilkumar Obuliraj**, 'Toxicological analysis of carbon based nanomaterials in food industry applications' in the Book Carbon-Based Nanomaterials in Biosystems, Elsevier. (Accepted)

7. C.Revathi, M. Boopalan, Sasikumar Arumugam, **O.Senthilkumar**, 'Role of different approaches of functionalization over carbonaceous nanomaterials in designing different sensor devices in food crop and biomedical sectors' in the Book Carbon-Based Nanomaterials in Biosystems, Elsevier. (Accepted)

BOOKS ON SDG

1. M. Muralisankar, C. Revathi, N. Karthikeyan and **O. Senthilkumar**, 'Sustainable Development Goals-Envisaged through the Verses of Bhagavad Gita' in the book Trends In Sociology, Psychology And Anthropology, AkiNik Publications, 2023 (ISBN: 978-93-5570-202-9)

2. C. Revathi and **O. Senthilkumar**, 'Environment Technologies for Sustainable Development' in the book Modern Research and Environmental Sustainability, AkiNik Publications, 2023 (ISBN: 978-93-5570-593-8)

ADMINISTRATIVE POSITIONS

Extracurricular Activities Coordinator – since 2021

National Science Day coordinator – since 2014

Fine Arts and Cultural Club coordinator – since 2021 to 2022

NAAC Criteria VI Coordinator – since 2017

NBA Criteria X Coordinator – since 2021

Head of the department – Chemistry – since 2015

Institutional Level Awards in-charge – since 2020

SPONSORED PROJECTS

DST - Recirculation of the effluent from the textile industry using photocatalytic degradation treatment to achieve zerodischarge in textile mill (TMD/WTI/OWUIS/2021/2022/108) – shortlisted for presentation

DST - WMT Dual benefit in using the waste tyre for waste water treatment and production of automotive seals and gaskets (TPN / 59612) - shortlisted for presentation

TNSCST – Student project - An Eco-Friendly Solution for Sewage Water Treatment Using Natural Herbs and Ag Nanoparticles – sanctioned during 2018-2019.

SERB - $\text{Cu}_2\text{ZnSn}(\text{SSe})_4$ (CZTS) solar cells: An alternative and cheaper photovoltaic technology – shortlisted for presentation

SUBJECTS HANDLED

(i) Engineering Chemistry, (ii) Industrial Nanotechnology, (iii) Fundamentals of Nanoscience, (iv) Environmental Science and Engineering, (v) Environmental Sciences and Sustainability

PERSONAL DATA

DATE OF BIRTH: 03.04.1976

PLACE OF BIRTH: SALEM, INDIA

LANGUAGES: ENGLISH, KANNADA, TAMIL, HINDI, JAPANESE

MARITAL STATUS: MARRIED

CHILDREN: TWO

COUNTRIES VISITED: JAPAN, SOUTH KOREA, USA, THAILAND, MALAYSIA