

Faculty Profile of Dr. C. S. Sureka



Dr. C. S. Sureka
Associate Professor & Head i/c
Department of Medical Physics

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Research Area

- Radiation dosimetry includes Monte Carlo aided dosimetry, Biological dosimetry and Nanodosimetry
- Radiation Safety

Education & Career

Education

Ph. D.

Subject : Brachytherapy (Theory +Experiment)

Institution : Anna University: Chennai

Affiliated University : Anna University: Chennai

Year of Award : 2007

M.Sc.,

Subject : Medical Physics

Institution : Anna University: Chennai

Affiliated University : Anna University: Chennai

Year of Award : 2002

B. Sc.,

Subject: Physics

Institution: S. T. Hindu College Nagercoil

Affiliated University: Manonmaniam Sundaranar University, Tirunelveli

Year of Award: 2000

Career**At Bharathiar University (Reverse Order)**

Associate Professor : Feb 2021 to Till date

Assistant Professor : Feb' 2009 to Feb 2021

Past Experience

Assistant Professor & Medical Physicist : Oct' 2007 to Feb' 2009 at
Pondicherry Institute of Medical Sciences (PIMS), Pondicherry

Awards

S.No.:1

Award Name: Dr. R. K. Borkotoky Best Research Paper Award 2019

Awarding Agency: Cancer Research Foundation

Country:India

Date of Award:6th June 2019

S.No.:2

Award Name: Junior Associateship of the Centre for Research and
Development

Awarding Agency: International Centre for Theoretical Physics (ICTP)

Country:Italy

Date of Award:12 April 2012

Membership

1. Association of Medical Physicists in India (AMPI)
: Life member 2005 onwards
2. Asia- Oceania Federation of Organization for Medical Physicists (AFOMP) :
Affiliated member 2005 onwards
3. Indian Brachytherapy Society (IBS)
: Life member 2007 onwards

Visits

S.No.1

Country visited:Taiwan

Period:03.05.2018 to 01.06.2018

Purpose of visit:To perform Cancer research at National Taiwan University under UICC Technical fellowships

S.No.2

Country visited:Italy

Period:15.04.2017 to 26.06.2017

Purpose of visit:To visit ICTP as Junior Associate to do research during summer vacation

S.No.3

Country visited:Italy

Period:12.04.2015 to 20.06.2015

Purpose of visit:To visit ICTP as Junior Associate to do research during summer vacation

S.No.4

Country visited:Italy

Period:18.04.2014 to 27.06.2014

Purpose of visit:To visit International Centre for Theoretical Physics (ICTP) as Junior Associate to do research during summer vacation

S.No.5

Country visited:New York, USA

Period:12.03.2012 to 11.04.2012

Purpose of visit:To undergo Radiobiology Training, RARAF Microbeam

Training Course and to participate in a Workshop, 10th International Workshop on “Microbeam probes of cellular Radiation Response” and perform research under UICC Technology Transfer fellowship

S.No.6

Country visited:California, USA

Period:13.04.2012 to 20.04.2012

Purpose of visit:To participate in a Workshop, training course and for training on Radiation biology and Nanodosimetry through Union for International Cancer Control (UICC) Technology Transfer fellowship

S.No.7

Country visited:Italy

Period:17.10.2011 to 28.10.2011

Purpose of visit:To participate in an IAEA Workshop on “Monte Carlo Radiation transport and associated data needs for Medical applications”

S.No.8

Country visited:Italy

Period:04.04.2011 to 08.04.2011

Purpose of visit:To participate in an ICTP/IAEA School on “Advanced Radiotherapy Techniques”

Collaborators

Sl.No.: 1

Collaborating Institute: Society for Applied Microwaves Electronics Engineering and Research (SAMEER)

Period: 01.12.2021 to till date

Project: Fabrication and Characterization of a Compact Prototype Positive Ion Detector as a Non-invasive Device for Early Detection of Respiratory diseases

Sl.No.2

PSG Hospitals, Coimbatore

Period: 2022

Sl.No.3

G. Kuppusamy Naidu Memorial Hospital, Coimbatore

Period: 2020

Sl.No.4

Narayana Hrudayalaya Limited, Bangalore

Period: 2017, 2018

Others

Projects

Funded Projects (National Level)

- [Ongoing](#)
- [Completed](#)

Title of Project: Fabrication and Characterization of a Compact Prototype Positive Ion Detector as a Non-invasive Device for Early Detection of Respiratory diseases

Funding agency: BDTD, DST, New Delhi

Sanctioned Amount: 39.99 Lakhs

Duration: 2021-2023

Sl. No.:1

Title of Project: Fabrication and characterization of a hybrid Nanodosimeter to measure neutron field and its evaluation to Radiation Biology

Funding agency: BRFST, IPR, Gujarat

Sanctioned Amount: 29.68

Duration:2012-16

Sl.No.:2

Title of Project: In-vivo dosimetric study of Mammography using a real-time Luminescence technique

Funding agency: SERB- DST, New Delhi

Sanctioned Amount: 27.50

Duration:2013-17

Sl.No.:3

Title of Project: Survey of effective dose receives by pediatric patients from Digital Radiography at various hospitals in South India

Funding agency: AERB, Mumbai

Sanctioned Amount: 17.95

Duration:2012-15

Consultancy Projects

- [Ongoing](#)
- [Completed](#)

Ongoing Consultancy Project Informations

Completed Consultancy Project Informations

Research Guidance

- [Post-Doc](#)
- [Ph.D.](#)
- [M.Phil.](#)
- [M.Sc.,](#)

ONGOING

Total Number of Research Scholars: 08

AWARDED

Number of Research Scholars Degree Awarded: 05

PG Projects Guided: 23

Research Publication

- [International](#)
- [National](#)
- [Conferences](#)
- [Books / Book Chapters](#)
- [Patents](#)
- [Database](#)

2023

Sl.No.:1

Paper Title: Fabrication and Dosimetric Characteristics of Silicon Elastomer-Based Bolus Using External Beam Radiotherapy

Authors: M Boopathi, D Khanna, P Venkatraman, R Varshini, C S Sureka, S Pooja

Journal Name: Asian Pacific Journal of Cancer Prevention

Vol.:24

Page No.:141-47

Impact Factor:2.514

2021

Sl.No.:1

Paper Title:An empirical method for splitting arcs in VMAT

Authors:Bojarajan, Harikrishna etti, Vaitheeshwaran.... C. S. Sureka

Journal Name:Physica Medica

Impact Factor:2.685

Vol.:88

Page No.:264-271

Sl.No.:2

Paper Title:Confirm Suitability of the 3d Positive Ion Detector to use in the field of Radiation Proection and gamma Spectrometry Applications

Authors:Pichaikannu Venkatraman and Chandrasekharan Senbagavadivoo Sureka

Journal Name:Physics of Prticles and Nuclei Letters

Impact Factor:0.7

Vol.:18

Page No.:232-38

2019

Sl.No.:1

Paper Title:Analysis on the performance of a 3D positive ion detector as propone and argon sensor

Authors: P Venkatraman, CS Sureka

Journal Name: Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms

Vol.: 450

Page No.:369-373

Impact Factor:1.21

Sl.No.:2

Paper Title:An In-Vitro study for early detection to and distinguish breast and lung malignancies using the PCB technology based nanodosimeter

Authors:P.Venkatraman and C. S. Sureka

Journal Name:Scientific Reports

Vol.:9

Page No.:1-16

Impact Factor:4.01

Sl.No.:3

Paper Title:Analyze the positive ion detector in terms of thickness

Authors:Pitchaikannu Venkatraman and C. S. Sureka
Journal Name:Nuclear Inst. and Methods in Physics Research, B
Impact Factor:1.21
Vol.:450
Page No.:374-379

2018

Sl.No.:1

Paper Title:Construction of dose response curves up to 6 Gy for Micronucleus and Dicentric Chromosome Aberration Assay with 6 MV X-ray Beam

Authors:K Mayakannan, CS Sureka, R Venkatesh, R Sathish Kumar, RK Jeevanram

Journal Name:Radiation Measurements

Vol.:115

Page No.:60-68

Impact Factor:1.435

Sl.No.:2

Paper Title:Production of polyhydroxybutyrate (PHB) from Pseudomonas plecoglossicida & its application towards cancer detection

Authors:Devaraj Sabarinathan, Sabapathy Poorna Chandrika, Pitchaikannu Venkatraman, Murugesh Easwaran, Chandrasekaran Senbagavadivoo Sureka, Kathirvel Preethi

Journal Name:Informatics in Medicine Unlocked

Impact Factor:2.11

Vol.:11

Page No.:61-67

Sl.No.:3

Paper Title:An Efficient and a Highly Sensitive Glucose Sensor Based on CuO Nanodots

Authors:G. Chinnasamy, P. Venkatraman, M. Sakthivel, Shen-Ming Chen, S. Sangeetha, and C. S. Sureka

Journal Name:Sensor Letters 16

Impact Factor:0.31

Vol.:16

Page No.:584-589

2017

Sl.No.:1

Paper Title:Fabrication and characterization of a 3D Positive ion detector and its applications

Authors:Pitchaikannu Venkatraman and Chandrasekaran Senbagavadivoo Sureka

Journal Name:Nuclear Inst. and Methods in Physics Research, A

Impact Factor:1.14

Vol.:872

Page No.:131-138

Sl.No.:2

Paper Title:Construction of dose response curves up to 6 Gy for Micronucleus and Dicentric Chromosome Aberration Assay with 6 MV X-ray Beam

Authors:K.Mayakannan, C.S.Sureka, R.Venkatesh, R.Sathish Kumar, and R.K.Jeevanram

Journal Name:Radiation Measurements

Impact Factor:1.435

Vol.:115

Page No.:60-68

Sl.No.:3

Paper Title:Comparison of Flattening Filter (FF) and Flattening Filter-Free (FFF) 6 MV photon beam characteristics for small field dosimetry using EGSnrc Monte Carlo simulation

Authors:S. Sangeetha and C. S. Sureka

Journal Name:Radiation Physics and Chemistry

Impact Factor:1.984

Vol.:135

Page No.:63-75

2014

Sl.No.:1

Paper Title:Detector system dose verification comparisons for arc therapy: couch

vs. gantry mount

Authors:A. Manikandan, B. Sarkar, M. Nandy, and C. S. Sureka

Journal Name:Journal of applied clinical medical physics

Vol.:15

Page No.:41-53

Impact Factor:1.544

2013

Sl.No.:1

Paper Title:A mathematical approach to beam matching

Authors:B Sarkar, A Manikandan, M Nandy, MS Gossman, CS Sureka, A Ray, N Sujatha

Journal Name:The British journal of radiology

Vol.:86

Page No.:20130238

Impact Factor:1.939

2006

Sl.No.:1

Paper Title:Dose distribution for endovascular brachytherapy using Ir-192 sources: comparison of Monte Carlo calculations with radiochromic film measurements

Authors:CS Sureka, C Sunil Sunny, KV Subbaiah, P Aruna, S Ganesan

Journal Name:Physics in Medicine & Biology

Vol.:52

Page No.:525

Impact Factor:3.030

Sl.No.:2

Paper Title:Computation of relative dose distribution and effective transmission around a shielded vaginal cylinder with HDR source using MCNP4B

Authors:C S Sureka, Prakasrao Aruna, Singaravelu Ganesan, Chirayath Sunil Sunny, Kamatam Venkata Subbaiah

Journal Name:Medical physics

Vol.:33

Page No.:1552-1561

Impact Factor:3.177

2018

Sl.No.: 1

Title: Variance reduction techniques used in the EGSnrc Monte Carlo code to improve ion-chamber dose calculation efficiency

Authors: S. Sangeetha and C. S. Sureka

Journal: Journal of Medical Physics

Volume No.:43

Page No.: 185-194

Sl.No.: 2

Title: A homogeneous water-equivalent anthropomorphic phantom for dosimetric verification of radiotherapy plans

Authors: Manikandan Arjunan, Sureka Chandra Sekaran, Biplab Sarkar, Sujatha Manikandan

Journal: Journal of Medical Physics

Volume No.:43

Page No.:100-105

2017

Sl.No.: 1

Title: Quality Assurance and Average Glandular dose measurement in mammography units

Authors: C Senthamil Selvan, and C. S. Sureka

Journal: Journal of Medical Physics

Volume No.:42

Page No.: 181-190

Published in AMPICON

2018

Sl.No.: 1

Title: Analyze the suitability of the nanodosimeter to detect breast cancer from exhaled breath

Authors: P Venkatraman, CS Sureka

Journal details: Journal of Medical Physics 43 (suppl. 1), 108

Sl.No.2

Title: Characterisation of a printed circuit board technology based 3D positive ion detector

Authors: A Abraham, P Venkatraman, CS Sureka

Journal details: Journal of Medical Physics 43 (suppl. 1), 104

Sl.No.3

Title: Comparison between the nanodosimeter and gas chromatography and mass spectrometry to diagnose cancer

Authors: R Vennila, P Venkatraman, CS Sureka

Journal details: Journal of Medical Physics 43 (suppl. 1), 102

Sl.No.4

Title: Acceptance testing and quality assurance of newly installed orthopantomography

Authors: JJ Sahay, CS Selvan, M Anandan, CS Sureka

Journal details: Journal of Medical Physics 43 (suppl. 1), 78

Sl.No.5

Title: Indigenously developed cost effective heterogeneous pediatric phantom

Authors: CS Selvan, CS Sureka

Journal details: Journal of Medical Physics 43 (suppl. 1), 33-34

Sl.No.6

Title: Study the quality assurance tests in mobile c-arm fluoroscopy systems using nomex multimeter

Authors: E Deepak, CS Selvan, CS Sureka

Journal details: Journal of Medical Physics 43 (suppl. 1), 71

Sl. No.7

Title: An in-vitro study for detection of breast, lung and colon malignancies using the printed circuit board technology based nanodosimeter

Authors: VA Portia, P Venkatraman, CS Sureka

Journal details: Journal of Medical Physics 43 (suppl. 1), 103-104

Sl.No.8

Title: Measurement of depth dose in mammography unit using MOSFET

Authors: CS Selvan, CS Sureka

Journal details: Journal of Medical Physics 43 (suppl. 1), 73

Sl.No.9

Title: Developments in mathematical expressions to map 3D ionization cluster size distribution in the nanodosimeter

Authors: CM Meera, P Venkatraman, CS Sureka

Journal details: Journal of Medical Physics 43 (suppl. 1), 111

2017

Sl.No.1

Title: ID: 1082; An in-vitro study to diagnose and distinguish breast and lung cancers using the PCB technology based nanodosimeter

Authors: P Venkatraman, CS Sureka

Journal details: Biomedical Research and Therapy 4 (S), 169-169

Sl.No. 2

Title: Positional errors in linear accelerator based frameless cranial stereotaxy: a note of caution

Authors: A Manikandan, CS Sureka, S Biplab

Journal details: Journal of Medical Physics 42 (suppl. 1), 157

Sl.No.3

Title: Comparison of inhomogeneity effect for small field dosimetry between 6 MV FF and FFF photon beams using the EGSnrc Monte Carlo code

Authors: S Sangeetha, CS Sureka

Journal details: Journal of Medical Physics 42 (suppl. 1), 155

Sl.No.4

Title: An in-vitro study to diagnose and distinguish breast and lung cancers using the PCB technology based nanodosimeter

Authors: P Venkatraman, CS Sureka

Journal details: Journal of Medical Physics 42 (suppl. 1), 121

Sl.No.5

Title: A simple and economic technique for annealing OSLD nano dots

Authors: CS Selvan, CS Sureka, U Selvaraj

Journal details: Journal of Medical Physics 42 (suppl. 1), 243-244

Sl.No.6

Title: Dosimetric comparison between nomex multimeter and Rad Cal Ion Chamber in nucletron simulix evaluation simulator

Authors: CS Selvan, CS Sureka, R Holla

Journal details: Journal of Medical Physics 42 (suppl. 1), 216

Sl.No.7

Title: The effects of ^{60}Co gamma radiation on human lymphocytes by micronuclei assay

Authors: K Mayakannan, SK Mercy, V Prabhakaran, CS Sureka

Journal details: Journal of Medical Physics 42 (suppl. 1), 233-234

Sl.No.8

Title: Evaluation of planning target volume margin for two imaging protocols

Authors: K Muthu, CS Sureka, SA Yoganathan, KJ Das, D Udayakumar, S Kumar

Journal details: Journal of Medical Physics 42 (suppl. 1), 164-165

Sl.No. 9

Title: Calculation of attenuation coefficients for biological substances at various gamma energies using the GEANT4 Monte Carlo code

Authors: CS Sureka, F Longo

Journal details: Journal of Medical Physics 42 (suppl. 1), 234-236

Sl.No.10

Title: Evaluation of half value layer and total filtration in Varian truebeam KV-CBCT

Authors: S Senthamil, CS Sureka, M Vadivel, A Pichandi
Journal details: Journal of Medical Physics 42 (suppl. 1), 171

Sl.No.11

Title: An in-vitro study of breast cancer diagnosis at all stages using the PCB technology based nanodosimeter

Authors: P Venkatraman, CS Sureka

Journal details: Journal of Medical Physics 42 (suppl. 1), 242-243

Books 2021

S.No.: 1

Book title: Radiation Biology for Medical Physicists

Authors: C. S. Sureka & C. Armpilia

Publishers: CRC Press, Taylor & Francis Group, New York, USA

Month & Year: October 13, 2017

ISBN: 9781498765893

Book Chapters 2017

S.No.: 1

Book Title: Artificial Intelligence Theory, Models and Applications (Chapters 4 and 6)

Authors: C. S. Sureka

Edited by: P. Kaliraj and T. Devi

Publishers: CRC Press, Taylor & Francis Group, New York, USA

Month & Year: October 2021

ISBN: 9781003175865

S.No.: 1

Details of Patent: An efficient instrument to detect ions and its applications

Filled by: Dr. C. S. Sureka and Dr. P. Venkatraman

Patent No.: 333366

Grant Sl.No.: 044117957

Year: 2020

Not Applicable.

Alumini Reflections: