

ABSTRACT

Name : **Dr. E.K. Girija**

Designation : Assistant Professor

Educational Qualification : M.Sc., Ph.D.,

Post Doctoral Studies : Six years in Japan and India under STA fellowship
CSIR Senior Research Associateship etc.

Experience : Teaching 7 years
Research 15 years

Areas of Research : Bioceramics
Ceramic – polymer biocomposites
Magnetic and luminescent nanobiomaterials
Crystal growth

Research Guidance : Ph.D - 7 (1 thesis submitted, 6 currently guiding)
M.Phil - 19 students (3 guiding)

Countries Visited : Japan, United States of America, Singapore

Fellowships Awarded : JRF and SRF (5 years by UGC India)
Visiting researcher by Nagoya University, Japan
STA fellowship by Science and Tech Agency Japan
Post Doctoral fellowship by AIST Japan
Senior Research Associateship by CSIR India
Fast Track Project by DST India
Invitation fellowship by Osaka City University Japan

Major Research Projects : 1 completed; 1 ongoing

Papers Published : International: 34; National: 3

Collaboration : International: 09; National: 07

Seminars/Conferences : Organized: 3 Attended: 80

Journals Review : International: 2

Membership in Professional : Indian Association for Crystal growth
Society for Biomaterials and Artificial Organs, India

Curriculum Vitae

Name : **Dr. E. K. GIRIJA**
Gender : Female
Date of Birth : 31. 07. 1970
Designation & Affiliation : Assistant Professor
Department of Physics, Periyar University
Postal Address : Department of Physics, Periyar University
Salem 636 011, Tamil Nadu, India
E-mail ID : girijaeaswaradas@gmail.com,
girijae@yahoo.com



Qualifications

- Ph.D., (1999), Physics, Anna University, Chennai, India.
- M.Sc., Materials Science (1992), P.S.G. College of Technology, Coimbatore, India.
- B.Sc. Physics (1990), Sree Ayyappa College, Kanyakumari District, Tamil Nadu, India.

Employment Experience

Assistant Professor Nov. 2008 – Till Date
Department of Physics, Periyar University, Salem, India

Lecturer in Physics June 2007 – Nov2008
Madurai Kamaraj University, Madurai, Tamil Nadu, India.

Senior Research Associate (CSIR Scientist' Pool Scheme) Sep 2004 – June 2007
Crystal Growth Centre, Anna University, Chennai.

Post Doc. Research Fellow Nov 2002 - Sep 2003
National Institute of Advanced Industrial Science and Technology, Japan.

STA Fellow Oct 2000 – Oct 2002
National Industrial Research Institute of Nagoya, Nagoya, Japan.

Visiting Researcher Feb 2000 – July 2000
National Industrial Research Institute of Nagoya, Nagoya, Japan.

Area of Research

- Bioceramics
- Ceramic – polymer biocomposites
- Magnetic and luminescent nanobiomaterials
- Crystal growth

Research Projects

Title: **Substituted nano hydroxyapatites – Investigations on the low temperature**

Funding Agency: DST, India

Duration: 2009-2012

Grant received: Rs. 18,25,400/-

Title: **Biomimetic nanocomposite for biomedical applications (Research Mentor)**

Funding Agency: DST, India

Duration: 2011-2014

Grant received: Rs. 16,08,000/-

Title: **Investigation on the synthesis of biocompatible and biodegradable nanohydroxyapatite based bioprobes**

Funding Agency: UGC, India

Duration: 2012-2015

Grant received: Rs. 10,13,000/-

Collaborators

Name : Prof. S. Narayana Kalkura

Division : Crystal Growth Centre

Institute : Anna University

Country : Chennai, India.

Name : Prof. Y. Yokogawa

Division : Graduate School of Engineering

Institute : Osaka City University

Country : Osaka, Japan.

Name : Dr. A. Thamizhavel

Division : Dep. of Condensed Matter Physics and Materials Science

Institute : Tata Institute of Fundamental Research (TIFR)

Homi Bhabha Road

Navy Nagar, Colaba

Country : Mumbai, India.

Name : Dr. R. K. Vasta

Division : Chemistry Division

Institute : Bhabha Atomic Research Centre (BARC)

Country : Mumbai, India.

Professional Membership

- Life member - [Indian Association for Crystal growth](#)
- Life member - [Society for Biomaterials and Artificial Organs, India.](#)

Recognitions & Awards

- Awarded Invitation fellowship by [Osaka City University, Japan 2014](#)
- Awarded International travel grant by [ICMR India 2013](#)
- Awarded International travel grant by [ICMR India 2011](#)
- Awarded International travel grant by [DST India 2011](#)
- Awarded DST Fast Track project by [DST India 2009](#)
- Senior Research Associateship by [CSIR India 2004 – 2007.](#)
- Post Doctoral fellowship by [AIST, Japan 2003.](#)
- STA by Science and Technology Agency, Japan [2000 – 2002.](#)
- Visiting Researcher, Nagoya University, Japan [2000 \(6 months\).](#)
- Senior Research Fellowship and Junior Research Fellowship by [UGC India \(5 years\).](#)
- Qualified in [GATE 1993](#)

Countries Visited

- Japan
- USA
- Singapore

Research Supervision

Doctor of Philosophy	: 7 students (1 thesis submitted)
Masters of Philosophy	: 19 students (3 guiding)
Master of Science	: 19 students (4 guiding)

Seminar/conference/workshop organized

- [Seminar on materials for Advanced Technology](#) (21st February 2014)
Department of Physics, Periyar University, Salem, India.
- [Workshop on Functional Materials](#) (14th March 2012)
Department of Physics, Periyar University, Salem, India.
- [Seminar on Recent Advances in Nanomaterials](#) (18 – 19 February 2008)
School of Physics, Madurai Kamaraj University, Madurai, India.

Publications

Number of publications in International refereed journals	: 34
Number of publications in National refereed journals	: 03
Number of publications in Conference Proceedings	: 14

INTERNATIONAL

2014

- Investigations on textile dye adsorption onto HA-Alginate nanocomposite prepared by a modified method
G. Vasugi, **E. K. Girija**
Cellulose Chemistry and Technology (Revision).
Impact factor- 0.825, Academia Republicii Socialiste Romania.
- Drug loaded phosphate glass/hydroxyapatite nanocomposite for orthopedic applications
R.Govindan, **E. K. Girija**
Journal of Materials Chemistry B 2 (33) (2014) 5467-5477.
Impact factor- 6.101, RSC.
- In situ synthesis, characterization and in vitro studies of ciprofloxacin loaded hydroxyapatite nanoparticles for the treatment of osteomyelitis
G. Suresh Kumar, R. Govindan, **E. K. Girija**
Journal of Materials Chemistry B 2 (2014) 5052-5060.
Impact factor- 6.101, RSC.
- Fabrication of a novel biocompatible magnetic biomaterial with hyperthermia potential
R.Karunamoorthi, G.Suresh Kumar, A.I.Prasad, R.K.Vasta, A.Thamizhavel, **E. K. Girija**
Journal of American Ceramic Society 97 (2014) 1115 – 1122.
Impact factor- 2.428, Wiley.

2013

- Preparation and characterisation of Al doped ZnO nanopowders
M. Chitra, K.Uthayarani, N.Rajasekaran, **E. K. Girija**
Physics Procedia 49 (2013) 171 – 176. ISSN: 1875-3892
- Novel porogen free porous hydroxyapatite-gelatin nanocomposite: Synthesis and Characterization
K. Sangeetha, S.N. Kalkura, Y.Yokogawa A.Thamizhavel, **E.K. Girija**
Springer Proceedings in physics 143 (2013) 399 – 407. ISSN: 0930-8989
- Flower - like hydroxyapatite nanostructure obtained from eggshell: A candidate for biomedical applications
G.Suresh Kumar, **E.K. Girija**
Ceramics International 39 (2013) 27 – 30
Impact factor- 2.086, Elsevier.

- [Effect of gelatin on the *in situ* formation of alginate/ hydroxyapatite nanocomposite](#)
K. Sangeetha, A. Thamizhavel, **E.K. Girija**
[Materials Letters 91 \(2013\) 27 - 30.](#)
Impact factor- 2.269, Elsevier.

2012

- [Microwave conversion of eggshells into flower-like hydroxyapatite nanostructure for biomedical applications](#)
G. Suresh Kumar, A. Thamizhavel, **E.K. Girija**
[Materials Letters 76 \(2012\) 198–200.](#)
Impact factor- 2.269, Elsevier.
- [Role of material processing on the sinterability and thermal stability of nanocrystalline hydroxyapatite](#)
E.K. Girija, G. Suresh Kumar, A. Thamizhavel, Y. Yokogawa, S. Narayana Kalkura,
[Powder Technology 225 \(2012\) 190–195.](#)
Impact factor- 2.269, Elsevier.
- [Synthesis, characterization and *in vitro* studies of zinc and carbonate co-substituted nano-hydroxyapatite for biomedical applications](#)
G. Suresh Kumar, A. Thamizhavel, Y. Yokogawa, S. Narayana Kalkura, **E.K. Girija**,
[Materials Chemistry and Physics 134 \(2012\) 1127–1135.](#)
Impact factor- 2.129, Elsevier.

2011

- [Effect of processing conditions on the properties of nano-hydroxyapatite](#)
G. Suresh Kumar, **E.K. Girija**, A. Thamizhavel
[International Journal of Nanotechnology and Applications 5 \(2011\) 137 – 144.](#)
Research India Publications [ISSN 0973 – 631X].
- [Fibrous growth of strontium substituted hydroxyapatite and its drug release](#)
R.V. Suganthi, K. Elayaraja, M.I. Ahymah Joshy, V. Sarath Chandra, **E.K. Girija**,
S. Narayana Kalkura
[Materials Science and Engineering C 31 \(2011\) 593-599.](#)
Impact Factor: 2.736, Elsevier.
- [Surfactant free rapid synthesis of hydroxyapatite nanorods by microwave irradiation method for the treatment of bone infection](#)
R Vani, Subramaniya Bharathi Raja, T.S. Sridevi, K Savithri, S. Niranjali Devaraj,
E.K.Girija, A. Thamizhavel, S Narayana Kalkura
[Nanotechnology 22 \(2011\) 285701 – 285710.](#)
Impact Factor: 3.672, IOP.

2010

- Synthesis and characterization of bioactive hydroxyapatite–calcite Nanocomposite for biomedical applications
G.SureshKumar, **E.K. Girija**, A. Thamizhavel, Y. Yokogawa, S. Narayana Kalkura
Journal of Colloid and Interface Science 349 (2010) 56 - 62.
Impact Factor: 3.552, Elsevier.

2009

- Effect of Fluorides (KF and NaF) on the growth of dicalcium phosphate dehydrate (DCPD) crystals
C. Sekar, P. Kanchana, R. Nithya Selvi, **E.K. Girija**
Materials Chemistry and Physics 115 (2009) 21 – 27.
Impact Factor 2.129, Elsevier.
- Simultaneous crystallization of calcium phosphate and calcium oxalate in the presence of ascorbic acid under physiological conditions
R. Vani, **E.K. Girija**, M. Palanichamy, S. Narayana Kalkura
Materials Science and Engineering C 29 (2009) 1227 – 1232
Impact Factor 2.736, Elsevier.
- Preparation of thermally stable nanocrystalline hydroxyapatite by hydrothermal Method
S. Prakash Parthiban, K. Elayaraja, **E. K. Girija**, Y. Yokogawa, R. Kesavamoorthy, M. Palanichamy, K. Asokan, S. Narayana Kalkura,
Journal of Materials Science: Materials in Medicine 20 (2009) 77 - 83.
Impact Factor 2.379, Springer.
- Investigations on the in vitro bioactivity of swift heavy oxygen ion irradiated hydroxyapatite
R. V. Suganthi, S. Prakash Parthiban, K. Elayaraja, **E. K. Girija**, P. Kulariya, Y. S. Katharria, F. Singh, K. Asokan, D. Kanjilal, S. Narayana Kalkura
Journal of Materials Science: Materials in Medicine 20 (2009) 271 - 275.
Impact Factor 2.379, Springer.
- Self-assembled right handed helical ribbons of the bone mineral hydroxyapatite
R. V. Suganthi, **E. K. Girija**, S. Narayana Kalkura, H. K. Varma and A. Rajaram,
Journal of Materials Science: Materials in Medicine 20 (2009) 131 - 136.
Impact Factor 2.379, Springer.
- Hydrothermal synthesis of porous triphasic hydroxyapatite (alpha and beta) tricalcium phosphate
R. Vani, **E.K. Girija**, K. Elayaraja S. Prakash Parthiban, S. Narayana Kalkura
Journal of Materials Science: Materials in Medicine 20 (2009) S43-S48.
Impact Factor 2.379, Springer.

2008

- [Effect of swift heavy ion irradiation on hydrothermally synthesized hydroxyapatite Ceramics](#)
S. Prakash Parthiban, R.V. Suganthi, **E.K. Girija**, K. Elayaraja, P.K. Kulriya, Y.S. Katharria, F. Singh, I. Sulania, A. Tripathi, K. Asokan, D. Kanjilal, S. Yadav, T.P. Singh, Y. Yokogawa, S. Narayana Kalkura
[NIM B 266 \(2008\) 911 -917.](#)
Impact Factor 1.186, Elsevier.
- [High Energy irradiation – a tool for enhancing the bioactivity of hydroxyapatite](#)
E.K.Girija, S.Prakash Parthiban, R.V.Suganthi, K.Elayaraja, A. Joshy, R.Vani, P.Kularia, K.Asokan, D.Kanjilal, Y. Yokogawa, S.Narayana Kalkura,
[J. Ceramic Society of Japan 116 \(2008\) 320 – 324](#)
Impact Factor 0.846, Ceramic Society of Japan.

2006

- [Crystallisation of hydroxyapatite nanocrystals under magnetic field](#)
N. Meenakshi Sundaram , **E.K. Girija**, M. Ashok , T.K. Anee, R. Vani, R.V. Suganthi, Y. Yokogawa, S. Narayana Kalkura
[Materials Letters 60 \(2006\) 761–765](#)
Impact Factor 2.269, Elsevier.

2004

- [Influence of carboxyl groups present in the mineralising medium in the biomimetic precipitation of apatite on collagen](#)
E.K. Girija, Y. Yokogawa, F. Nagata,
[Key Engineering Materials” 254-256 \(2004\) 399-402,](#)
Impact Factor 0.224, Trans Tech.
- [In Vitro crystallization of apatite on Type I collagen fibrils: role of albumin](#)
E.K. Girija, Y. Yokogawa, F. Nagata, T. Saito
[J. Ceramic Society of Japan 112 \(2004\) S853, 2004.](#)
Impact Factor 0.846, Ceramic Society of Japan.
- [Apatite formation on collagen fibrils in presence of polyacrylic acid](#)
E.K. Girija, Y. Yokogawa, F. Nagata
[Journal of Materials Science: Materials in Medicine 15 \(2004\) 593 – 599.](#)
Impact Factor 2.379, Springer.

2002

- [Effect of poly L-aspartic acid on the biomimetic formation of calcium phosphate on collagen gel](#)
E.K. Girija, Y. Yokogawa, F. Nagata
[Key Engineering Materials” 218-220 \(2002\) 113-116](#)
Impact Factor 0.224, Trans Tech.

- Bone-like apatite formation on collagen fibrils by biomimetic method
E.K. Girija, Y. Yokogawa, F. Nagata
Chemistry Letters. PP 702-703, 2002.
Impact Factor 1.594, Ceramic Society of Japan.

2000

- Knoop microhardness studies of urinary calculi and synthesized calcium oxalate monohydrate crystals
E.K. Girija, G.R. Siva kumar, S. Narayana Kalkura, P. Ramasamy, D. R.Joshi, P. B. Sivaraman
Materials Chemistry and Physics 63 (50-54) 2000.
Impact Factor 2.129, Elsevier.

1998

- Crystallization and characterization of calcium phosphates: Brushite and monetite
G. R. Sivakumar, **E.K. Girija**, S. Narayana Kalkura, C. Subramanian,
Crystal Research and Technology, 33 (1998) 195-203
Impact Factor 1.164, Wiley.
- Crystallization and microhardness of calcium oxalate monohydrate
E.K. Girija, S. Christic Latha, S. Narayana Kalkura, C. Subramanian, P. Ramasamy
Materials Chemistry and Physics 52(1998) 253-257
Impact Factor 2.129, Elsevier.

1995

- Crystallization of monosodium urate monohydrate
S. Narayana Kalkura, **E.K. Girija**, M. Kanakavel and P. Ramasamy
Journal of Materials Science: Materials in Medicine, 6 (1995) 577-580
Impact Factor 2.379, Springer.
- Crystallization of cystine
E.K. Girija, S. Narayana Kalkura and P. Ramasamy,
Journal of Materials Science: Materials in Medicine, 6 (1995) 617- 619
Impact Factor 2.379, Springer.

NATIONAL

- Role of chiral molecule on the growth and properties of KDP crystal
S.Nirmala Sri Devi, **E.K. Girija**
Sacred Heart Journal of Science and Humanities (Revision). ISSN 2277 – 6613
- Mineralogical composition of urinary calculi from southern India
E.K. Girija, P.B. Sivaraman, S. Kalakura and Y. Yokogawa,
Journal of Scientific and Industrial Research, 66 (2007) 632 – 639, 2007.
Impact Factor 0.5, NISCAIR.
- Analyses of Trace elements in urinary calculi
E.K. Girija, S.N. Kalkura and P. Ramasamy
Convergence. 1, (1999) 55-58. Sage

CONFERENCE PROCEEDINGS / BOOK CHAPTER

- K. Sangeetha, **E. K. Girija**, [Lead and cadmium ion removal by novel interpenetrating polymer-ceramic nanocomposite](#), Advanced Polymeric Materials from Macro to Nano Length scales (2014), Apple Academic Press (CRC - Book Chapter).
- S. Karthi and **E.K. Girija**, [Synthesis, growth, structure determination and optical properties of chalcone derivative single crystal](#), Proceedings of the 58th DAE Solid State Physics Symposium 2013, AIP Conf. Proc. 1591 (2014) 1188-1190.
- G. Vasugi, G. Suresh Kumar and **E. K. Girija**, [Adsorption of reactive dyes on to carbonate substituted nanohydroxyapatite](#), Proceedings of the 58th DAE Solid State Physics Symposium 2013, AIP Conf. Proc. 1591 (2014) 867-868.
- G. Suresh Kumar, A. Thamizhavel, **E.K. Girija**, [In situ synthesis and in vitro studies of hydroxyapatite–calcite nanocomposite for orthopedic applications](#), in: M.G. Sethuraman (Eds.), Recent Advances in Surface Science, Bonfring Publisher (2013) Pages: 48–49 (ISBN: 978–93–82338–36–9 - Book Chapter).
- K.Sangeetha, A.Thamizhavel and **E.K.Girija**, [Lead ion sorption by hydroxyapatite based adsorbents](#), in: M.G. Sethuraman (Eds.), Recent Advances in Surface Science, Bonfring Publisher (2013) Pages: 151-152 (ISBN: 978–93–82338–36–9 - Book Chapter)
- S. Karthi, **E.K. Girija**, [Synthesis, Growth and Characterization of New Organic NLO Single Crystal: 1-\(4-Nitrophenyl\)-5-Phenyl-Penta-2,4-dien-1-one](#) in: M.G. Sethuraman (Eds.), Recent Advances in Surface Science, Bonfring Publisher (2013) Pages: 202 (ISBN: 978–93–82338–36–9 - Book Chapter).
- **E.K. Girija**, R. Govindan, A. Thamizhavel, [Investigations on the Fabrication and Properties of Phosphate Glass/nanohydroxyapatite Composite Scaffolds](#), ICMAT 2013, Materials Research Society Proceedings. (In press).
- G. Suresh Kumar, **E.K. Girija**, A. Thamizhavel, [Synthesis and photoluminescence study of flower-like hydroxyapatite nanostructure for bioprobe applications](#), Proceedings of the 57th DAE Solid State Physics Symposium 2012, AIP Conf. Proc. 1512 (2013) 250–251.
- **E.K. Girija**, G. Suresh Kumar, A. Thamizhavel, Y. Yokogawa, S. Narayana Kalkura, [Fabrication of hydroxyapatite–calcite nanocomposite](#), in: R. Narayan, P. Colombo, S. Widjaja, D. Singh (Eds.), Advances in Bioceramics and Porous Ceramics IV: Ceramic Engineering and Science Proceedings, Volume 32, John Wiley & Sons, USA (2011) Pages-3-11. (Book Chapter)
- G. Vasugi, A. Thamizhavel, **E.K. Girija**, [Luminescence studies of rare earth doped and co-doped hydroxyapatite](#), Proceedings of the 56th DAE Solid State Physics Symposium (2011). AIP Conf. Proc. 1447, 267-268, 2012.

- G. Suresh Kumar, **E.K. Girija**, A. Thamizhavel, Y. Yokogawa, S. Narayana Kalkura, [Synthesis and physico-chemical properties of zinc and carbonate co-substituted nano-hydroxyapatite for biomedical applications](#), in: V. Rajendran, B. Hillebrands, P. Prabu, K.E. Geckeler (Eds.), Biomedical Applications of Nanostructured Materials, Macmillan Publisher India Limited (2010) Pages-70-80.
- **E.K.Girija**, G.Suresh Kumar, A.Thamizhavel, [Zinc and carbonate substituted Nano-Hydroxyapatite](#), Proceedings of the 55th DAE Solid State Physics Symposium, AIP Conf.proc.1349, 315-316 (2010).
- **E. K. Girija**, S. Narayana Kalkura and P. B. Sivaraman, [Investigations on the crystalline components of urinary stones](#), Proceedings of VII National Symposium on Crystal Growth, 258-263, 1997.
- S. Christic Latha, **E. K.Girija** and S. Narayana Kalkura, [Crystallization and characterization of cadmium oxalate](#), Proceedings of National Symposium on Fundamentals of Crystal Growth, 322-325, 1996.

Conferences attended in abroad

- **E.K. Girija**, R. Govindan, A. Thamizhavel, [Investigations on the Fabrication and Properties of Phosphate Glass/nanohydroxyapatite Composite Scaffolds](#), ICMAT 2013, Materials Research Society, Singapore during 30th June – 5th July 2013.
- **E.K. Girija**, G. Suresh Kumar, A. Thamizhavel, Y. Yokogawa, S. Narayana Kalkura, [Fabrication of hydroxyapatite–calcite nanocomposite](#), 35th International Conference & Exposition on Advanced Ceramics & Composites organized by The American Ceramic Society at Hilton Daytona Beach Resort & Ocean Center, Daytona Beach, FL, USA during January 23-28, 2011.
- **E.K. Girija**, Y.Yokogawa, F.Nagata and T.Saito, [In vitro crystallization of apatite on type I collagen fibrils: role of albumin](#), The 5th International Meeting of Pacific Rim Ceramic Societies, September 29 to October 2, 2003.
- **E.K. Girija**, Y. Yokogawa, F. Nagata and T. Saito, [Biomimetic formation of Calcium phosphate on collagen in the presence of bovine serum albumin](#), 15th American Conference on Crystal Growth and Epitaxy in Keystone, Colorado **July 20 - 24, 2003**.
- **E.K. Girija**, Y. Yokogawa and F. Nagata, [Investigations on the formation of bone-like apatite on reconstituted collagen fibrils from conventional and revised simulated body fluids](#), Second International Symposium on Biomimetic Materials Processing Nagoya University, Nagoya, Japan, January 15-17, 2002.

- **E.K. Girija**, Y. Yokogawa and F. Nagata, [The influence of poly L-aspartic acid and zinc on the biomimetic crystallization of hydroxyapatite on collagen](#), The Thirteenth International Conference on Crystal Growth in Conjunction with The Eleventh International Conference on Vapor Growth and Epitaxy, Doshisha University (Imadegawa Campus) Kyoto, Japan, 30 July - 4 August 2001.

Papers presented in National and International Conferences/ Seminars/ Symposiums

2014

- K. Sangeetha, **E. K. Girija**, "Removal of cadmium ions from aqueous solution by hydroxyapatite based composites" in National Conference on Advanced Materials and its Applications (NCAMA-2014) held at Annamalai University, Chidambaaram -608002, India on 4th & 5th April 2014 (Poster).
- K. Sangeetha, **E. K. Girija**, "Removal of lead ions from aqueous solution by hydroxyapatite based composites" in National Conference on Recent Advances in Water and Waste Water Treatment (RAWWT-2014) held at The Gandhigram Rural Institute Deemed University, Gandhigram-624 302, India on 21st & 22nd March 2014 (Oral).
- K. Sangeetha, **E. K. Girija**, "Biomimetic ceramic-polymer nanocomposites as drug delivery matrices for biomedical applications" in Seminar on materials for advanced technologies (SMAT 2014) held at Periyar University, Salem-636011, India on 21 Feb 2014 (Won best poster award).
- G. Vidhya, K. Sangeetha, **E. K. Girija**, "Role of gelatin on the preparation and characterization of alginate-hydroxyapatite nanocomposie" in Seminar on materials for advanced technologies (SMAT 2014) held at Periyar University, Salem-636011, India on 21 Feb 2014 (Poster).
- S. Karthi, **E.K. Girija**, "Synthesis, Growth and Characterization of new D- π - A - π - D type Chalcone Derivative Single Crystals for Nonlinear Optical Applications" in Recent Advances in material science" held at School of Physics, Bharathidasan University, Tiruchirappalli-24, Tamil Nadu, India on 3-4 February– 2014 (Poster).
- S. Karthi, **E.K. Girija**, "Structural and Optical Properties of a New D- π - A - π - D Chalcone Derivative Single Crystal" in Semiar on materials for advanced technologies (SMAT 2014) held at Periyar University, Salem-636011, India on 21 Feb 2014 (Poster).
- G. Vasugi, **E.K. Girija**, "Synthesis and characterization of rare earth doped and co doped nanohydroxyapatite for bioimaging applications" in Seminar on materials for advanced technologies (SMAT 2014) held at Periyar University, Salem-636011, India on 21 Feb 2014 (Poster).

- G. Vasugi, **E. K. Girija**, “Adsorption of reactive dye by nanohydroxyapatite/ alginate composite” in National Conference on Recent Advances in Water and Waste Water Treatment (RAWWT-2014) held at The Gandhigram Rural Institute Deemed University, Gandhigram-624 302, India on 21st & 22nd March 2014 (Won best poster award).
- G. Vasugi, **E. K. Girija**, “Removal of reactive red 198 dye from aqueous solution using pure and yttrium doped nanohydroxyapatite” in National Conference on Advanced Materials and its Applications (NCAMA-2014) held at Annamalai University, Chidambaaram -608002, India on 4th & 5th April 2014 (Poster).
- S.Nirmala sri Devi, **E.K. Girija**, J.Kalyana Sundar, “Influence of acids on growth and characterization of L-Valine” in National Conference on Advanced Materials and its Applications (NCAMA-2014) held at Annamalai University, Chidambaaram -608002, India on 4th & 5th April 2014 (Poster).
- S.Nirmala sri Devi, **E.K. Girija**, J.Kalyana Sundar, “Role of acids on growth and characterization of L-Valine” in Seminar on materials for advanced technologies (SMAT 2014) held at Periyar University, Salem-636011, India on 21 Feb 2014 (Poster).
- S.Nirmala sri Devi, **E.K. Girija**, “Role of chiral molecule on the growth and properties of KDP crystal” in One Day National Conference on Information Technology and Higher Education - Possibilities & Challenges held at St. Anne’s degree college for women, Bangalore – 560008, India on 28 Feb 2014 (oral).
- I .Ancy, G. Suresh kumar and **E.K. Girija**, “Bi-functional hydroxyapatite for biomedical application” in Seminar on materials for advanced technologies (SMAT 2014) held at Periyar University, Salem-636011, India on 21 Feb 2014 (Poster).
- R. Javith and **E.K. Girija**, “Growth, structural and optical studies of KTiOPO₄ single crystals” in Seminar on materials for advanced technologies (SMAT 2014) held at Periyar University, Salem-636011, India on 21 Feb 2014 (Poster).

2013

- R. Govindan, A. Thamizhavel, **E.K. Girija**, *In vitro* investigations on drug loaded hydroxyapatite/phosphate glass nanocomposite, National conference on Challenges in Biomaterials Research 23-24 Dec 2013, VIT University, Vellore, Tamilnadu. **(Poster)**
- K. Sangeetha, **E. K. Girija**, “Insitu formation of substituted hydroxyapatite-gelatin nanocomposite for bone tissue engineering applications” IUMRS-ICA 2013, IISc Bangalore 16-20, December-2013 **(Oral)**
- S.Nirmala Sri Devi, **E.K.Girija**, “Role of ethanoic acid on growth and characerization of L-Valine” IUMRS-ICA 2013, IISc Bangalore 16-20, December-2013 **(Poster)**
- G.Vasugi, G.Suresh Kumar, **E.K.Girija**, Adsorption of reactive dyes onto carbonate substituted nanohydroxyapatite, 58th DAE Solid State Physics Symposium (**DAE-SSPS-2013**), Thapar University, Patiala during December 17-21, 2013. **(Poster)**

- S. Karthi, **E.K. Girija**, Synthesis, Growth, structure determination and optical properties of a chalcone derivative single crystal, 58th DAE Solid State Physics Symposium (DAE-SSPS-2013), Thapar University, Patiala during December 17-21, 2013. **(Poster)**
- K. Sangeetha, **E. K. Girija**, "Lead and cadmium ion removal by novel interpenetrating polymer-ceramic nanocomposite" in International Conference on Advanced Polymeric Materials (ICAPM 2013) held at Mahatma Gandhi University, Kottayam-686560 Kerala, India on 10-12 Oct – 2013. **(Poster)**
- K. Sangeetha, **E. K. Girija**, "Biomimetic hydroxyapatite and hydroxyapatite-gelatin scaffolds as drug delivery matrices for biomedical applications" in International Conference on Advanced Polymeric Materials (ICAPM 2013) held at Mahatma Gandhi University, Kottayam-686560 Kerala, India on 10-12 Oct – 2013. **(Oral)**
- G.Vasugi, **E.K.Girija**, Investigations on textile dye adsorption onto HA-Alginate nanocomposite prepared by a modified method, **International conference on Advanced Polymeric Materials 11-13 Oct 2013 (ICAPM 2013)**, Mahatma Gandhi University, Kottayam, Kerala. **(Oral)**
- S.Nirmala Sri Devi, **E.K.Girija**, Growth and characterization of a new semi- organic NLO crystal, "National conference on Functional Materials" at PG and Research Department of Physics, Sacred Heart College, Tirupattur, Tamil Nadu, India on 19th September– 2013.**(Oral)**
- S. Karthi, **E.K. Girija**, Synthesis, growth and characterization of new organic NLO Crystal: 1-(4methylphenyl)-5-(4-Methoxyphenyl)- Penta-2,4-dien-1-one, "National conference on Functional Materials" at PG and Research Department of Physics, Sacred Heart College, Tirupattur– 635 601, Tamil Nadu, India on 19th September– 2013.**(Oral)**
- **E.K. Girija**, R. Govindan, A. Thamizhavel, Investigations on the Fabrication and Properties of Phosphate Glass/nanohydroxyapatite Composite Scaffolds, ICMAT 2013, Materials Research Society, Singapore during 30th June – 5th July 2013. **(Oral)**
- G. Suresh Kumar, A. Thamizhavel, **E.K. Girija**, "*In situ* synthesis and in vitro studies of hydroxyapatite-calcite nanocomposite for orthopedic applications"- National Conference on Recent Advances in Surface Science held at Department of Chemistry Gandhigram Deemed University, Dindigul–624 302, Tamilnadu, India on 14 and 15th February 2013.
- K. Sangeetha, A. Thamizhavel, **E. K. Girija**, "Lead ion sorption by hydroxyapatite based adsorbents", in National Conference on Recent Advances in Surface Science held at Department of Chemistry, Gandhigram Deemed University, Dindigul-624 302, Tamil Nadu, India on 14th and 15th February 2013. **(Oral)**
- S. Karthi, **E.K. Girija**, Synthesis, Growth and Characterization of New Organic NLO Single Crystal: 1-(4-Nitrophenyl)-5-Phenyl-Penta-2,4-dien-1-one, National Conference on Recent Advances in Surface Science held at Department of Chemistry Gandhigram Deemed University, Dindigul–624 302, Tamilnadu, India on 14 and 15th February 2013. **(Poster)**

- G. Suresh Kumar, A. Thamizhavel, **E.K. Girija**, “*In situ* synthesis and in vitro studies of hydroxyapatite-calcite nanocomposite for orthopedic applications” – 4th International Conference on Recent Advances in Composite Materials (ICRACM 2013) held at International Centre, Goa organized by Indian Institute of Technology BHU, Varanasi– 221 005, India on 18–21 February 2013.
- K. Sangeetha, A. Thamizhavel, **E. K. Girija**, “Investigations on the removal of lead ions from aqueous solution by hydroxyapatite/polymer composites”, in 4th International Conference on Recent Advances in Composite Materials (ICRACM 2013) held at International Centre, Goa organized by Indian Institute of Technology BHU, Varanasi– 221 005, India on 18–21 February 2013. **(Poster)**

2012

- G. Suresh Kumar, **E.K. Girija**, A. Thamizhavel, “Synthesis and photoluminescence study of flower-like hydroxyapatite nanostructure for bioprobe applications” – 57th DAE Solid State Physics Symposium held at Indian Institute of Technology Bombay, Mumbai, Maharashtra, India on 3–7 December– 2012.
- G. Suresh Kumar, **E.K. Girija**, “Synthesis and characterization of hydroxyapatite for biomedical applications” – 12th Tamilnadu Science Congress held at Periyar University, Salem, Tamilnadu, India on 23–25 August– 2012.
- G.Vasugi, **E.K.Girija**, Luminescence studies of pure and rare earth-doped hydroxyapatite, 12th Tamil Nadu Science Congress, Periyar University, Salem, Tamil Nadu, India on 23–25 Aug– 2012. **(Oral)**

2011

- K. Sangeetha, S. Narayana Kalkura, Y. Yokogawa, A. Thamizhavel, **E.K. Girija**, “Novel porogen free porous hydroxyapatite-gelatin nanocomposites : synthesis and characterization”, 2nd International Conference on Advanced Nanomaterials and Nanotechnology, Indian Institute of Technology, Guwahati, Assam on December 08 - 10, 2011.**(Poster)**
- K. Sangeetha, T. Suganya, **E. K. Girija**, A. Thamizhavel, “Role of alginate matrix on biomineralization of the calcium oxalate and calcium phosphate”, National Conference On Recent Trends In Materials Science (NCRTMS-11), held at KSR College of Technology, Tiruchengode, Tamil Nadu, India on 11th and 12th , November 2011. **(Poster)**
- G. Suresh Kumar, **E.K. Girija**, A. Thamizhavel, “Fabrication of highly bioactive nano-hydroxyapatite based biomaterials” in International Conference on Nanoscience and Nanotechnology held at Coimbatore Institute of Technology (CIT), Coimbatore, Tamilnadu, India on 6–8 July – 2011.
- K. Sangeetha, **E. K. Girija**, A.Thamizhavel, “Synthesis of nano hydroxyapatite using organic modifiers”, International Conference on Nanoscience and Nanotechnology (ICNN-2011) held at Coimbatore Institute of Technology (CIT), Coimbatore, Tamil Nadu, India on 6–8 July – 2011. **(Oral)**

- G.Vasugi, A.Thamizhavel, **E.K.Girija**, Luminescence studies of rare earth-doped and co-doped hydroxyapatite, AIP Conf. Proc. 1447, (2012) 267-268, 56th DAE solid state Physics Symposium, SRM University, Chennai, Tamil Nadu, India 19-23, Dec 2011. **(Poster)**

2010

- **E.K. Girija**, G. Suresh Kumar, A. Thamizhavel, "Zinc and carbonate co-substituted nano-hydroxyapatite" – 55th DAE-Solid State Physics Symposium held at Manipal University, Karnataka, India on 26–30 December – 2010.
- G. Suresh Kumar, **E.K. Girija**, A. Thamizhavel, Y. Yokogawa, S. Narayana Kalkura, "Synthesis and physico-chemical properties of zinc and carbonate co-substituted nano-hydroxyapatite for biomedical applications" – International Conference on Nanomaterials and Nanotechnology (NANO-2010) held at KSR College of Technology, Tiruchengode, Tamilnadu, India on 13–16 December – 2010.
- G. Suresh Kumar, **E.K. Girija**, A. Thamizhavel, "Effect of processing on the properties of nanocrystalline hydroxyapatite" – National Conference on Nanomaterials (NCN-2010) held at Department of Physics, Karunya University, Coimbatore, Tamilnadu, India on 3–4 December – 2010.
- G. Suresh Kumar, **E.K. Girija**, "A novel technique to synthesis of hydroxyapatite-calcite nanocomposite" – National Seminar on Glimpses of Materials Science held at Department of Physics and Chemistry, Sri Sarada College for Women, Salem – 636 016, Tamilnadu, India on 1st February– 2010.
- G. Suresh Kumar, **E.K. Girija**, A. Thamizhavel, "Influence of reaction temperature and citric acid on the formation of hydroxyapatite nanopowder" – National Conference on Recent and Emerging Developments in Physics held at Department of Physics, Women's Christian College, Nagercoil– 629 001, Tamilnadu, India on 7–9 January – 2010.

2007

- **E.K. Girija**, R.V.Suganthi and S.Narayana Kalkura, Synthesis and characterization of phase pure Si substituted hydroxyapatite, Indo-Australian workshop on Biomaterials for Implants and Tissue Engineering and Regenerative Medicine held at Sree Chitra Tirunal Institute of Medicine, Poojapura, Trivandrum during January 10th to 12th 2007.

2006

- **E.K. Girija**, R.V.Suganthi and S.Narayana Kalkura, Investigations on the synthesis and characterization of silicon substituted hydroxyapatite, Conference on Nanoscience and Nanotechnology conducted by Nuclear Physics, Department, University of Madras, Chennai during Aug.26-28, 2006.

2005

- **E.K. Girija**, Y.Yokogawa and R.Dhanasekaran, Investigations on Biomimetic inorganic - organic composites for bone and dental replacement Materials, Tenth National Seminar on Crystal Growth held at Kongu Engineering College, Perunthurai, Erode 638 052 during 27th to 20th January 2005.
- **E.K. Girija**, N. Meenakshi Sundaram, R.Vani and S. Narayana Kalkura, Crystallization and characterization of calcium phosphates, R.V. Suganthi, National Conference on Ceramics for medical application held at IIT, Madras during 16 – 17 September 2005.
- **E.K. Girija**, R.Dhanasekaran, P.B.Sivaraman, S.Narayana Kalakura, Epidemiology of urinary calculi in Chennai: Study for one year, National Conference on Path to Health – Biotechnology Revolution in India held at Centre for Biotechnology, Anna University during 24th to 26th November 2005.

2003

- E.K.Girija, Y.Yokogawa, F.Nagata and T.Saito, Biomimetic formation of Calcium phosphate on collagen in the presence of bovine serum albumin, 15th American Conference on Crystal Growth and Epitaxy in Keystone, Colorado July 20 - 24, 2003.
- **E.K. Girija**, Y.Yokogawa and F.Nagata, Influence of carboxyl groups present in the mineralising medium in the biomimetic precipitation of apatite on collagen, 1^{6th} International conference on Bioceramics, Porto, Portugal, November 2003.
- **E.K. Girija**, Y.Yokogawa, F.Nagata and T.Saito, *In vitro* crystallization of apatite on type I collagen fibrils: role of albumin, The 5th International Meeting of Pacific Rim, Ceramic Societies, September 29 to October 2 2003.

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- **E.K. Girija**, Y.Yokogawa and F.Nagata, Investigations on the formation of bone-like apatite on reconstituted collagen fibrils from conventional and revised simulated body fluids Second International Symposium on Biomimetic Materials Processing, Nagoya University, Nagoya, Japan, January 15-17, 2002

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- **E.K. Girija**, Y.Yokogawa and F.Nagata, The influence of poly L-aspartic acid and zinc on the biomimetic crystallization of hydroxyapatite on collagen, The Thirteenth International Conference on Crystal Growth in Conjunction with The Eleventh International Conference on Vapor Growth and Epitaxy, Doshisha University (Imadegawa Campus) Kyoto, Japan, 30 July - 4 August 2001
- **E.K. Girija**, Y.Yokogawa and F.Nagata, Effect of poly L-aspartic acid on the biomimetic formation of calcium phosphate on collagen gel, 14th International conference on Bioceramics , November 14 to 17, 2001.

1999

- **E.K. Girija**, S.N.Kalkura, P.Ramasamy and P.B.Sivaraman, Epidemiology of urinary calculi in Chennai, Indian Science Congress 86th Session Anna University, Chennai, India, January 3-7, 1999.
- **E.K. Girija**, S.N.Kalkura and P.Ramasamy, Analyses of Trace elements in urinary calculi, International Conference on Environment and Bioethics Loyala College, Chennai, India, January 14-16,1999.
- **E.K. Girija** and S.N.kalkura Trace elements in uriunary calculi and their influence on calcium oxalate monohydrate crystallization, VIII National Seminar on Crystal Growth, Crystal Growth Centre, Anna University, Chennai, India, February 3-5, 1999.
- **E.K. Girija**, S.N.Kalkura, P.Ramasamy and P.B.Sivaraman, Pathway for the identification of oxalate and phosphate urinary calculi, Mateials Research Society of India, Regional Research Laboratory, Bhopal, February 8-10, 1999.
- **E.K. Girija**, S.Narayana Kalkura and P.Ramasamy, Investigation on the influence of trace elements on calcium oxalate monohydrate crystallization, XII International Conference on Crystal Growth, July 26-31, 1999 Jerusalem, Israel.

1998

- **E.K. Girija**, S. Narayana Kalkura, P.B. Sivaraman and P. Ramasamy, Microstructure and microhardness of calcium oxalate monohydrate urinary calculi, Indo-Japanese symposium on Frontiers in Electron Microscopy in the 21st Century and XXII Annual Conference on Electron Microscopy Society of India held at Centre for Cellular and Molecular Biology, Hyderabad, India, November 9-11, 1998.
- **E.K. Girija**, S.Narayana Kalkura and P.Ramasamy, Role of trace elements on biomineralization: calcium oxalate monohydrate, Tenth National Conference of Society for Biomaterials and Artificial organs India held at Sree Chitra Tirunal Institute for Medical Sciences and Technology, Tiruvananthapuram, India November 10 11, 1998.

1997

- **E. K. Girija**, S. Narayana Kalkura and P. B. Sivaraman, Investigations on the crystalline components of urinary stones VII National Seminar on Crystal Growth held at Crystal Research Centre, Alagappa University, Karaikudi, India January 6 - 8, 1997.
- **E.K. Girija**, G. R. Sivakumar and S. Narayana Kalkura, Crystallization and microhardness studies of calcium oxalate monohydrate XXVIII National Seminar on Crystallography held at School of Pure and Applied Physics, Mahatma Gandhi University, Kottayam, India September 24 26, 1997.

- G. R. Sivakumar, **E.K. Girija**, S. Narayana Kalkura and C. Subramanian, Growth and characterization of brushite and monetite crystals, XXVIII National Seminar on Crystallography held at School of Pure and Applied Physics, Mahatma Gandhi University, Kottayam, India September 24 - 26, 1997.
- **E.K. Girija**, S. Narayana Kalkura and P. Ramasamy, Scanning Electron Microscopic identification of urinary stones XXI National Conference of Electron Microscope Society of India held at Regional Research Laboratory, Trivandrum, India December 17 - 19, 1997.

1996

- S. Christic Latha, **E.K. Girija** and S. Narayana Kalkura, Crystallization and characterization of cadmium oxalate, National Conference on Fundamentals of Crystal Growth held at Crystal Growth Centre, Anna University, Chennai, India January 29 - 30, 1996.
- S. Christic Latha, **E.K. Girija** and S. Narayana Kalkura, Crystallization and characterization of calcium oxalate monohydrate, National Conference on Fundamentals of Crystal Growth held at Crystal Growth Centre, Anna University, Chennai, India January 29 - 30, 1996.

1995

- **E.K. Girija** and S. Narayana Kalkura, Investigations on inhibitors and promoters of cystine crystallization, XXVI National Seminar on Crystallography held at the Department of Studies in Physics, University of Mysore, India January 16 - 18, 1995.
- **E.K. Girija** and S. Narayana Kalkura, Cystine : Crystallization and growth kinetics, VI National Seminar on Crystal Growth held at Crystal Growth Centre, Anna University, Chennai, India February 2 - 4, 1995.
- **E.K. Girija** and S. Narayana Kalkura, Kinetics of cystine crystallization XI International Conference on Crystal Growth held at Hague, The Netherlands, June 18 - 23, 1995.

1993

- **E.K. Girija**, S. Narayana Kalkura and P. Ramasamy, Crystallization and morphological studies of cystine and its derivatives, XXV National Seminar on Crystallography held at Department of Crystallography and Biophysics, University of Madras, Chennai, India December 15 - 17, 1993.
- **E.K. Girija**, S. Narayana Kalkura and P. Ramasamy, Investigations on synthetic urinary stones: Cystine, VII National Conference of Urolithiasis Society of India held at Dr.A.L.M. Post Graduate Institute of Biological and Medical Sciences, Chennai, India, December 27 - 29, 1993.

Invited Lectures

- Investigations on Biomimetic inorganic - organic composites for bone and dental replacement Materials E.K.Girija, Y.Yokogawa and R.Dhanasekaran, Tenth National Seminar on Crystal Growth held at Kongu Engineering College, Perunthurai, Erode 638 052 during 27th to 20th January 2005.
- Given an invited lecture on 1st December at the UGC refresher course conducted by Crystal Growth Centre, Anna University, Chennai during November 2005 to 7th December 2005. Title of the lecture was "Crystals and Biomaterials".
- Delivered invited lecture at National conference on Functional Materials conducted by Sacred Heart College, Tirupattur, Tamil Nadu, India on 19th September– 2013.
- Invited for delivering lecture as a resource person in UGC refresher course conducted by the Academic Staff College, Madurai Kamaraj University on 29-11-2013.
- Delivered a lecture at Graduate School of Engineering, Osaka City University, Japan on 20-05-2014.

Research Group Achievements

- | | |
|----------------------------|--|
| G. Suresh Kumar | : Ph.D., Thesis
CSIR digital Library, Additional contingency grant released |
| K. Sangeetha | : 2 nd prize (Poster presentation)
SMAT, Periyar University 21 st Feb 2014. |
| K. Sangeetha | : 2 nd prize (Poster presentation)
International Conference on Advanced Polymeric Materials (ICAPM 2013)" 11-13 October, Mahatma Gandhi University, Kottayam, Kerala, India. |
| G. Vasugi | : 3 rd prize (Poster presentation)
RAWWT – 2014, The Gandhigram Rural Institute Deemed University, Gandhigram-624 302, India on 21 st & 22 nd March 2014 |
| S. Nirmala Sri Devi | : 3 rd prize (Oral presentation)
Sacred Heart's College at Tirupattur, Tamil Nadu India on 19 th August 2013 |
| S. Karthi | : 2 nd prize (Oral presentation)
Sacred Heart's College at Tirupattur, Tamil Nadu India on 19 th August 2013 |

Ph.D., Scholars

- | | |
|------------------------|-----------------------------------|
| 1. G. Suresh Kumar | - CSIR SRF (Thesis Submitted) |
| 2. K. Sangeetha | - DST Women Scientist |
| 3. R. Karunamoorthy | - URF (Currently under part time) |
| 4. G. Vasugi | - UGC Project fellow |
| 5. S. Nirmala Sri Devi | |
| 6. S. Karthi | |
| 7. R. Govindan | |

Major Equipments

- Freeze Dryer
- Deep Freezer
- Incubator
- Vacuum Oven
- Orbital Shaker
- Muffle Furnace
- Hot Air Oven
- Research Centrifuge
- Ultrasonicator
- Constant Temperature Bath
- Microwave Oven

Our Research Group

