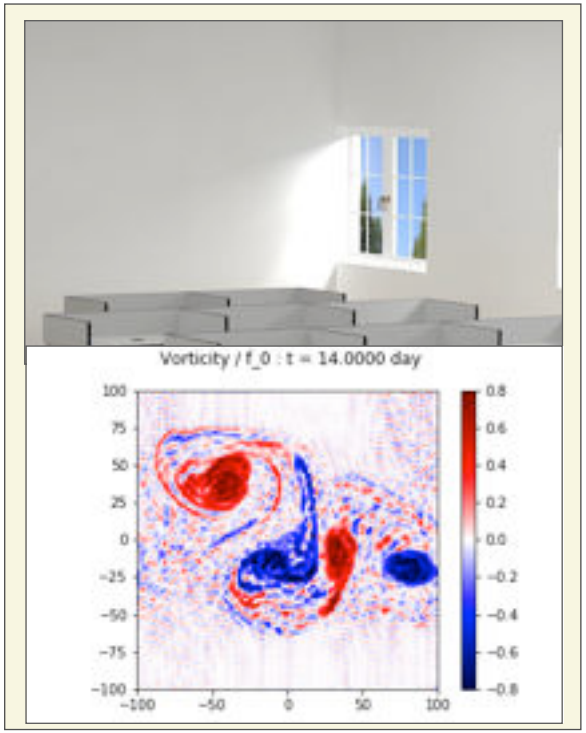


Scope of the Workshop

Considering the fast development of computing in Physics research, 'Computational Physics' as a subject of study has entered in the curricula of most of the Universities. There exists, however, a need to curate essential topics into curricula with an aim to support research work. It is in this background that this workshop is being organized.

There shall be invited lectures and hands-on training on selected areas of computational physics. Topics included are Monte Carlo methods, molecular dynamics, simulation of quantum systems, etc.

There shall be sessions for presentation of papers by research students. One page abstract of the papers in the areas of theory and computation in any branch of Physics may be forwarded as pdf attachment to secretary, once registration is confirmed.

Information to Participants

Organizers shall help in arranging accommodation to out-of station participants in hotels in their own expenses. Conveyance between place of stay and the University shall be arranged.

Please send request for participation directly to secretary by email to

sec_nwcp@cukerala.ac.in

Venue:
Narmada Block, Tejaswini Hills
Central University of Kerala
Periye, Kasargod, Kerala - 671316
Contact:
9048752498 (Programme Office)
8921485466 (Secretary)

National Workshop on Computational Physics

March 25-27, 2019

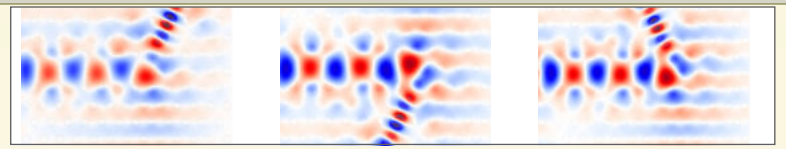
Central University of Kerala

Welcome

The Department of Physics, Central University of Kerala welcomes you to participate in the forthcoming National Workshop on Computational Physics to be held during 25-28 March, 2019.

Co-sponsored by
Mathematical and Statistical Sciences Trust, India

Department of Physics



The National Workshop

Researchers and Faculty members interested in gaining working knowledge and in the foundations of computational physics are encouraged to participate. Selection will be limited to 30 outstation participants along with our own students.

Highlights

- Tutorial introduction to research areas in Computational Physics
- Invited lectures: Dr M. N. Murthy, Dr Stratis Kounias, Dr Hans J Houbold, and Dr. A.M. Mathai Endowment sessions/lectures
- Code level discussions/hands-on training
- Paper presentation by research students

Organizing Committee

- Professor KJ Thomas (Chairman)
- Dr Swapna S Nair (Convener)
- Dr R Rajesh
- Dr E Prasad
- Dr SC Sahoo
- Dr. Aneesh PM
- Professor Vincent Mathew (Orgnising Secretary)

Started in one of the transit campuses of the University in 2010, the Department of Physics has established as a vibrant department of the University with more than 100 international level publications in Journals of International repute. This department can boast of accommodating highest number of doctoral students in the University and producing academic output at all levels. Relocated to its permanent campus this year, the department is in its path of fast development. We have at present functional labs for materials preparation and characterization, thin film studies, and moderate computational facilities which are being upgraded.

```
50 -    jz   = besselj(0,w*alfa);
51      % Now calculate Green's functions of various inde
52      % memory
53 -    det = -(Ge.*Gh);
54 -    G   = ((1./albt2).*(beta2*Ge-alfa2.*Gh))./det; %G
55 -    G(1)= G(1)/2;
56 -    cr11 = jx*diag(G)*jx';
57 -    G    = -j*(abta.*(Ge+Gh)./albt2)./det;          %G
58 -    G(1)= G(1)/2;
59 -    cr12 = jx*diag(G)*jz';
```

Thrust Areas of the Department

The department has been trying to make teaching and research as integral parts of education. We have a curriculum giving much importance to problem solving and building foundations. In research the main activities are around the following topics:

- Theoretical and computational physics in the areas of light matter interaction, wave phenomena and applications
- Nano-structured and complex materials including semiconducting, magnetic, dielectric, and multi-ferroic materials
- Quantum dots, thin films devices and quantum transport
- Nuclear Reactions

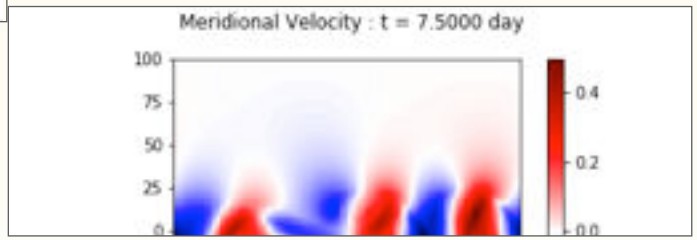
Registration

Interested participants may send their request directly to the Organizing Secretary on or before March 10, with the following details:

1. Name, designation and address
2. Knowledge and experience in the area of computational physics
3. Interested in presenting a paper or not (in any area of theory/computation)*.

Send email to: sec_nwcp@cukerala.ac.in or use the link in the University website. (Selected participants shall be intimated by March 11, 2019.)

* 1 page abstract needs to be submitted in pdf format as attachment, once registration is confirmed.



Registration Fees

Faculty Members	Rs. 2000
Students	Rs. 1000

(Registration fees may be paid on arrival)

National Workshop on Computational Physics (2019)
Schedule of Programme

25-03-2019 (Day I)

Registration	**9.00 - 9.30**
Inauguration	**9.30 - 10.00**
Session 1 **10.00 - 11.15 am**	Speaker: Dr. Subir K Das **Simulations of Phase Transitions: Challenges in Thermodynamics and Dynamics**
Session 2 **11.45 - 12.30**	**Interaction session**
Session 3 **1.30 - 3.00 pm**	Speaker: Dr. Subir K Das **Computational Techniques to Study Nucleation and Growth in Fluids**
Session 4 **3.30 - 4.30 pm**	Speaker: Dr. Ajith R **Introduction to Band-structure Computation**

26-03-2019 (Day II)

Address by the **Hon. Vice-Chancellor Professor (Dr.) G. Gopa Kumar** (Followed by Inauguration of New Computational Lab)	
Session 4 **10.0 - 11.15 am**	Speaker: Dr. Jobin Jose **Introduction to Quantum scattering of atoms and molecules: A computational approach**
Session 5 **11.45- 1.00 pm**	Speaker: Dr. Jobin Jose **Entropic uncertainties in the confined atoms near avoided crossings**
Session 6 **1.45 - 3.00 pm**	Speaker: Dr. Ajith R **Tight Binding Approach to Flat-band Localization in Condensed Matter Systems**
Session 7	**3.45pm - 5.00 pm** **(Paper Presentation by Participants)** Chair: Dr. E. Prasad

National Workshop on Computational Physics (2019)
Schedule of Programme

27-03-2019 (Day III)

Session 8 **10.00 - 11.15 am**	**10.00 am - 11.15 am** Speaker: Dr. Saji Joseph **Self-Consistent Solution of Schrodinger and Poisson Equations**
Session 9 **11.45 am - 1.00 pm**	Speaker: Dr. Bhagyaraj C **Simulation of Planar Waveguide Devices:** **Method of Lines**
Session 10 **1.30 pm - 2.45 pm**	Speaker: Dr. Saji Joseph **Simulation of FETs and Quantum Transport**
Valedictory Session	**3.00 pm - 3.30 pm**

(End of Programme)

National Workshop on Computational Physics (2019)
Schedule of Programme

25-03-2019 (Day I)

Registration	**9.00 - 9.30**
Inauguration	**9.30 - 10.00**
Session 1	**10.00 am - 11.15 am** (Dr. Hans J Houbold Endowment Lecture) Chair: Dr. Swapna S Nair Speaker: Dr. Subir K Das **Simulations of Phase Transitions: Challenges in Thermodynamics and Dynamics**
Tea Break	**11.15 - 11.45**
Session 2	**11.45 - 12.30** **Interaction session**
Lunch Break	**12.30 - 1.30**
Session 3	**1.30 pm - 3.00 pm** (Dr. M.N. Murthy Endowment Lecture) Chair: Dr. Aneesh PM Speaker: Dr. Subir K Das **Computational Techniques to Study Nucleation and Growth in Fluids**
Tea Break	**300 - 3.15**
Session 4	**3.30 pm - 4.30 pm** Chair: Dr. Nirmala Maria D'Souza Speaker: Dr. Ajith R **Introduction to Band-structure Computation**

National Workshop on Computational Physics (2019)
Schedule of Programme

26-03-2019 (Day II)

Session 4	**10.00 am - 11.15 am** (Dr. Stratis Kounias Endowment Lecture) Chair: Dr. SC Sahoo Speaker: Dr. Jobin Jose **Introduction to Quantum scattering of atoms and molecules: A computational approach**
Tea Break	**11.15 - 11.45**
Session 5	**11.45 am - 1.00 pm** (Dr. A.M. Mathai Endowment Lecture) Chair: Dr. SC Sahoo Speaker: Dr. Jobin Jose **Entropic uncertainties in the confined atoms near avoided crossings**
Lunch Break	**1.00 - 1.45**
Session 6	**1.45 pm - 3.00 pm** Chair: Dr. Salini K Speaker: Dr. Ajith R **Tight Binding Approach to Flat-band Localization in Condensed Matter Systems**
Address by the **Hon. Vice-Chancellor Professor (Dr.) G. Gopa Kumar** (Followed by Inauguration of New Computational Lab)	
Tea Break	**330 - 3.45**
Session 7	**3.45pm - 5.00 pm** **(Paper Presentation by Participants)** Chair: Dr. E. Prasad

National Workshop on Computational Physics (2019)
Schedule of Programme

27-03-2019 (Day III)

Session 8	**10.00 am - 11.15 am** Chair: Dr. KJ Thomas Speaker: Dr. Saji Joseph **Self-Consistent Solution of Schrodinger and Poisson Equations**
Tea Break	**11.15 - 11.45**
Session 9	**11.45 am - 1.00 pm** Chair: Dr. SC Sahoo Speaker: Dr. Bhagyaraj C **Simulation of Planar Waveguide Devices: Method of Lines**
Lunch Break	**1.00 - 1.45**
Session 10	**1.30 pm - 2.45 pm** Chair: Dr. KJ Thomas Speaker: Dr. Saji Joseph **Simulation of FETs and Quantum Transport**
Valedictory Session	**3.00 pm - 3.30 pm**

(End of Programme)

National Workshop on Computational Physics (NWCP – 19')

on 25.03.2019 to 27.03.2019

List of Participants

Sl.No	Name	Course
1.	AJIL BABU	M.Sc
2.	AKASH K S	M.Sc
3.	AMAL V SREEDHAR	M.Sc
4.	ANIL PARMAR	M.Sc
5.	ANJITHA C R	M.Sc
6.	ANLIN KURIAN	M.Sc
7.	ANN MARY AUGUSTINE	M.Sc
8.	ANUJA MARIAM KURIAN	M.Sc
9.	ANUSHA M K	M.Sc
10	APARNA K M	M.Sc
11	ATHIRA B VARRIER	M.Sc
12	CHRISTY PHILIP	M.Sc
13	DIBYA KIRTI MISHRA	M.Sc
14	EMIL XAVIER	M.Sc
15	HARITHA K V	M.Sc
16	HASANA JAHAN E K	M.Sc
17	KEERTHANA S	M.Sc
18	LABEEBAMUMTHAZ V	M.Sc
19	MADHUSHREE P	M.Sc
20	MEENU P	M.Sc
21	RAJAT KUMAR TRIPATHY	M.Sc
22	RASHIDHA S RADHAKRISHNAN	M.Sc
23	RONALD SCARIA	M.Sc
24	SARIKA K S	M.Sc
25	SHIKHA SIVAKUMAR	M.Sc
26	SREELAKSHMI M R	M.Sc
27	SREYA VENUGOPAL	M.Sc
28	SUHAIL AHMAD GANIE	M.Sc
29	THUSHARA C J	M.Sc
30	VISMAYA V S	M.Sc
31	VYSAKH M J	M.Sc
32	ADITHYA P.S	M.Sc
33	AKHILA T.V	M.Sc
34	ALEENA MANI	M.Sc
35	ALOYSIUS S.MANNOOR	M.Sc
36	AMALA JOSE	M.Sc
37	ANJANA CHANDRAN	M.Sc

डॉ. Dr VINCENT MATHEW
Professor
भौतिक विज्ञान विभाग Department of Physics
केरल केंद्रीय विश्वविद्यालय / Central University of Kerala
तेजस्विनी हिल्स,पोरिया, कासरगोड Tejaswini Hills, Periya, Kasaragod

38	ANJANA E.SUDHEER	M.Sc
39	ANKIT DAS	M.Sc
40	ARABINDA PRADHAN	M.Sc
41	ARUNYA RAJ R	M.Sc
42	GANGA R.NAIR	M.Sc
43	HASHIR B	M.Sc
44	JIJI RAMACHANDRAN V K	M.Sc
45	MALAVIKA R.K	M.Sc
46	MEERA RAMACHANDRAN	M.Sc
47	MUSHRIFA M.K	M.Sc
48	NITHYA M	M.Sc
49	NYVEDIA PRASOOLNATH	M.Sc
50	RAJDEEP PAUL	M.Sc
51	REENU THOMAS	M.Sc
52	SAMNESH C.K	M.Sc
53	SRINJANA ROUTH	M.Sc
54	SWALIHA T.V	M.Sc
55	VARUN Y	M.Sc
56	VISHNU P	M.Sc
57	RAKESH RAMACHANDRAN	Ph.D
58	JESWIN MAMMEN RAJU	Ph.D
59	SHILNA K.V	Ph.D
60	NIRMALA MARIA D' SOUZA	Ph.D
61	SALINI.K	Ph.D
62	AJITH KUMAR.K	Ph.D
63	SUSEEL RAHUL	Ph.D
64	THOMAS MATHEW	Ph.D
65	SREEJITH.K.P	Ph.D
66	MAMIDI KARTHEEK	Ph.D
67	MEGHNA.C.H	Ph.D
68	SUBHA.A	Ph.D
69	ANUMOL.C.N	Ph.D
70	SALINI.M.G	Ph.D
71	ARGISH VENUGOPAL	Ph.D
72	AJITH.S.KUMAR	Ph.D
73	SUSHA.N	Ph.D
74	VIVEK.S	Ph.D
75	SHAREEF.M	Ph.D
76	LAVEEN.P.V	Ph.D
77	SHAMLATH.A	
78	VISAKH.A.C	Ph.D
79	LEVNA CHACKO	Ph.D
80	RAJ KISHOR	Ph.D
81	MANIKANTA B	Ph.D
82	NEELI CHANDRAN	Ph.D
83	SUJITH C P	Ph.D
84	ANJU JOSEPH	Ph.D

डॉ. विंसेंट मैथ्यू : Dr VINCENT MATHEW
भौतिक विज्ञान विभाग : Department of Physics
केरल केंद्रीय विश्वविद्यालय : Central University of Kerala

85	SHILNA K V	Ph.D
86	VISHNU V V	
87	NICEMON THOMAS	
88	Prof. K.J.THOMAS	Faculty
89	Prof.VINCENT MATHEW	Faculty
90	Dr.SWAPNA S NAIR	Faculty
91	Dr.E.PRASAD	Faculty
92	Dr.S.C.SAHOO	Faculty
93	Dr.P.M.ANEESH	Faculty

डॉ. विन्सेंट मैथ्यु / Dr. VINCENT MATHEW
आचार्य / Professor
भौतिक विज्ञान विभाग / Department of Physics
केरल केंद्रीय विश्वविद्यालय / Central University of Kerala
तेजस्विनी हिल्स,पेरिया, कासरगोड / Tejaswini Hills, Periya, Kasaragod