

## Science Academies' Lecture Workshop on High Energy Physics: 12-14 July 2017

<p><u>DAY 2, 13 July 2017 Thursday</u></p> <p>9.30 -10.55 am : <b>Lecture-5</b> Prof. M V N Murthy</p> <p><b>Topic : Symmetries and classification of particles-II</b></p> <p>10.55 -11.05 am : <b>Tea Break</b></p> <p>11.05-12.30 pm : <b>Lecture-6</b> Prof. D Indumathi</p> <p><b>Topic : Dirac theory of the electron and electroweak interactions-II</b></p> <p>12.30- 1.15 pm : <b>Lunch Break</b></p> <p>1.15 -2.40 pm : <b>Lecture-7</b> Prof. V Ravindran</p> <p><b>Topic : Spontaneous symmetry breaking and introduction to Standard Model-II</b></p> <p>2.40-2.50 pm : <b>Tea Break</b></p> <p>2.50-4.20 pm : <b>Lecture-8</b> Prof. D Indumathi</p> <p><b>Topic : Tutorial – II</b></p>	<p><b>Registration</b></p> <ul style="list-style-type: none"> <li>There is NO registration fee to attend this lecture workshop.</li> <li>Lunch and refreshments will be provided to all the participants.</li> <li>Only 175 participants will be permitted to register and registration is done on "First come First Serve" basis.</li> <li>Interested students/teachers are requested to download the application form available at <a href="http://www.bishopmoorecollege.org">www.bishopmoorecollege.org</a> and send the filled in form in the following address on or before 5<sup>th</sup> July, 2017.</li> </ul> <p>Head of the Department of Physics Bishop Moore College Mavelikara, Alappuzha (Dist)-690110 Email Id: <a href="mailto:drsajanbmc@gmail.com">drsajanbmc@gmail.com</a> Mobile:9495043765</p>	<div style="text-align: center;">  <h3>SCIENCE ACADEMIES' LECTURE WORKSHOP</h3> <p>ON</p> <h3>ADVANCES IN HIGH ENERGY PHYSICS</h3> <p>Jointly Organised by Indian Academy of Sciences, Bengaluru Indian National Science Academy, New Delhi The National Academy of Sciences India, Allahabad</p>  <p>Hosted by Post Graduate &amp; Research Department of Physics Bishop Moore College, Mavelikkara, Kerala - 690110</p> <p><b>Date : July 12 - 14 2017</b> <b>Venue: Seminar Hall, Bishop Moore College</b></p> </div>
<p><u>DAY 3, 14 July 2017 Friday</u></p> <p>9.30 -11.00 am : <b>Lecture-9</b> Prof. M V N Murthy</p> <p><b>Topic : Symmetries and classification of particles-III</b></p> <p>11.00 -11.10 am : <b>Tea Break</b></p> <p>11.10 -12.40 pm : <b>Lecture-10</b> Prof. D Indumathi</p> <p><b>Topic : Dirac theory of the electron and electro-weak interactions - III</b></p> <p>12.40- 1.30 pm : <b>Lunch Break</b></p> <p>1.30 -3.00 pm : <b>Lecture-11</b> Prof. V Ravindran</p> <p><b>Topic : Spontaneous symmetry breaking and introduction to Standard Model-III</b></p> <p>3.00-3.15 pm : <b>Tea Break</b></p> <p>3.15-3.30 pm : <b>Lecture-12</b> Prof. V Ravindran</p> <p><b>Topic : Tutorial – III</b></p>	<p><i>Convenor:</i></p> <p>Prof M.V.N.Murthy Professor, The Institute of Mathematical Sciences CIT Campus, Chennai 600 113</p> <p><i>Local Coordinator:</i></p> <p>Dr. Lija K Joy Assistant Professor Department of Physics Bishop Moore College, Mavelikara, Kerala Email Id: <a href="mailto:lijakjoy@gmail.com">lijakjoy@gmail.com</a></p>	

Dear Sir/Madam, Greetings!

The Department of Physics, Bishop Moore College, Mavelikara strives to organize, connect, create and communicate concepts of Physics effectively, through the 4D's- Dedication, Discipline, Direction and Determination. Realizing the necessity to strengthen the Postgraduate and Under graduate programmes in Physics, we are hosting a three day workshop on the topic "Advances in High Energy Physics" organized jointly by the Indian Science Academies. It is our pleasure to invite the M Sc and B Sc Physics students from your college to participate in this workshop. We look forward to have your collaboration for a fruitful workshop.

#### **Nature of the Workshop**

The workshop is designed as a Lecture Workshop – a programme promoted by the three national academies of science : Indian Academy of Sciences, Bangalore; Indian National Science Academy, New Delhi and The National Academy of Sciences, Allahabad under "Science Academies' education programmes" and is sponsored by the three Science academies. The workshop will be from 9:30 am to 4:30 pm.

#### **About the College**

Bishop Moore College, Mavelikara, a college affiliated to the University of Kerala and reaccredited with 'A' Grade by NAAC, is emerging as a leading educational and research institution in Kerala with 11 undergraduate and 5 postgraduate courses and two research departments. The institution aims to be a centre of excellence and a catalyst in facilitating a holistic development of youth with international standards and to update and create new knowledge through research.

#### **About the Department**

The Department of Physics, Bishop Moore College, Mavelikara, has a glorious history of over four decades with many golden feathers in its cap. It is the first Post Graduate department in the college, having started the B.Sc. course in 1967 and the M.Sc. course in 1983. Prof. (Rev.) K.C. Mathew, the first Head of the Department, is also the founder Principal of Bishop Moore College.

The Department of Physics became an approved Research Centre of the University of Kerala in 2012.

The department is now emerging as a flourishing centre of research in the field of Spectroscopy and Non linear Dynamics, with three major research projects in this field, funded by the CSIR, KSCSTE and DST. The Department has become a DST- FIST sponsored department in 2014 with a sponsorship for five years. The Ministry of Science and Technology, Government of India has sanctioned the project for upgrading the standard of postgraduate teaching and research facilities through this project. The KSCSTE has sanctioned the SARD project to the Department in 2016 and the DBT has sanctioned the STAR college Scheme in 2017.

#### **Lecture Workshop Objectives**

The study of elementary particle physics is an important juncture. The goal of High Energy Physics is to understand the fundamental forces of nature. These forces govern the interaction of matter and energy. Our understanding of the nature of physical existence derives in large part from the theories of particle physics.

The aim of the Science Academies' Lecture Workshop is to promote scientific collaboration between theorists and experimentalists, students and lecturers from different parts of the country. The Workshop will offer an excellent opportunity for young physicists to integrate in the high-energy physics community and participate in future experiments and their theoretical interpretation.

This lecture-workshop is specifically meant for the local/ regional students and college teachers, with a view to make them gain in depth knowledge in particle physics. The Lecture sessions will cover the topics of particle physics, as per the syllabus of the fourth semester M.Sc Physics of the University of Kerala. Participants will get ample chance for interaction with the renowned speakers as a part of learning.

#### **Who Can Attend the Workshop**

UG & PG students, teachers and research scholars with physics/material science background can participate in this workshop

#### **Topics Covered**

- Symmetries and classification of particles
- Dirac theory of the electron and electroweak interactions

- Spontaneous symmetry breaking and introduction to Standard Model

#### **Resource Persons:**

PROF. M.V.N.MURTHY

Professor, The Institute of Mathematical Sciences  
CIT Campus, Chennai 600 113

PROF. D INDUMATHI

Professor, The Institute of Mathematical Sciences  
CIT Campus, Chennai 600 113

PROF. V RAVINDRAN

Professor, The Institute of Mathematical Sciences  
CIT Campus, Chennai 600 113

#### **Program Schedule**

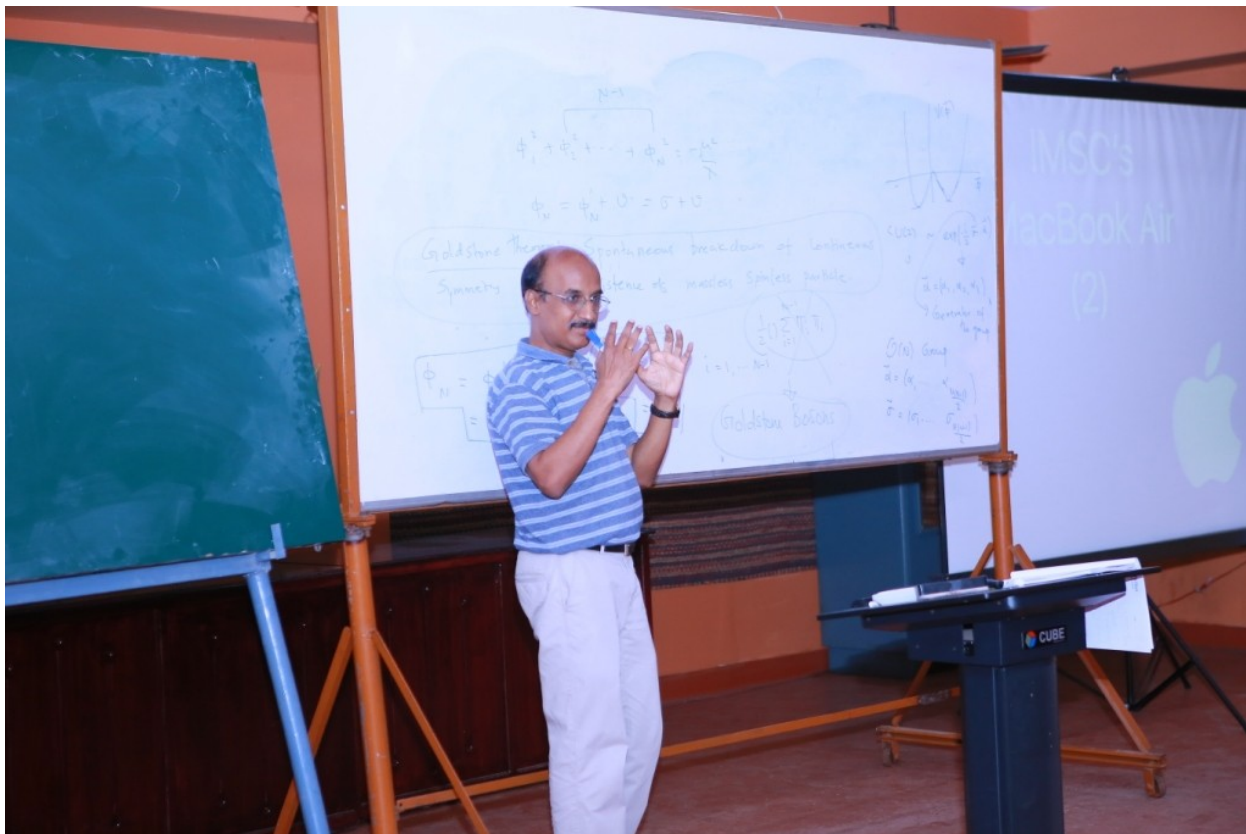
##### DAY 1 12 July 2017 Wednesday

9.30-9.45 am	: Inaugural Function
9.45-11.10 am	: Lecture-1 Prof. M V N Murthy
<b>Topic</b>	: <b>Symmetries and classification of particles-I</b>
11.10-11.20 am	: Tea Break
11.20 -12.45 pm	: Lecture-2 Prof. D Indumathi
<b>Topic</b>	: <b>Dirac theory of the electron and electroweak interactions-I</b>
12.45-1.30 pm	: Lunch Break
1.30-2.55 pm	: Lecture-3 Prof. V Ravindran
<b>Topic</b>	: <b>Spontaneous, symmetry breaking and introduction to Standard Model-I</b>
2.55 - 3.05 pm	: Tea Break
3.05 - 4.30 pm	: Lecture-4 Prof. M V N Murthy
Topic	: <b>Tutorial-I</b>









## TENTATIVE PROGRAMME SCHEDULE

DAY I 12 July 2017 Wednesday		DAY II 13 July 2017 Thursday		DAY III 14 July 2017 Friday	
9.30-9.45 am	Inaugural Function				Lecture-9 <b>Prof. M V N Murthy</b> (Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai-113) Topic: Symmetries and classification of particles-III
9.45-11.10 am	Lecture-1 <b>Prof. M V N Murthy</b> (Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai-113) Topic: Symmetries and classification of particles-I	9.30 -10.55 am	Lecture-5 <b>Prof. M V N Murthy</b> (Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai-113) Topic: Symmetries and classification of particles-II	9.30 -11.00 am	
11.10-11.20 am	Tea Break	10.55 -11.05 am	Tea Break	11.00 -11.10 am	Tea Break
11.20 -12.45 pm	Lecture-2 <b>Prof. D Indumathi</b> (Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai-113) Topic: Dirac theory of the electron and and electro-weak interactions-I	11.05-12.30 pm	Lecture-6 <b>Prof. D Indumathi</b> (Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai-113) Topic: Dirac theory of the electron and and electro-weak interactions-II	11.10 -12.40 pm	Lecture-10 <b>Prof. D Indumathi</b> (Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai-113) Topic: Dirac theory of the electron and and electro-weak interactions-III
12.45-1.30 pm	Lunch Break	12.30- 1.15 pm	Lunch Break	12.40- 1.30 pm	Lunch Break
1.30-2.55 pm	Lecture-3 <b>Prof. V Ravindran</b> (Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai-113) Topic: Spontaneous symmetry breaking and introduction to Standard Model-I	1.15 -2.40 pm	Lecture-7 <b>Prof. V Ravindran</b> (Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai-113) Topic: Spontaneous symmetry breaking and introduction to Standard Model-II	1.30 -3.00 pm	Lecture-11 <b>Prof. V Ravindran</b> (Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai-113) Topic: Spontaneous symmetry breaking and introduction to Standard Model-III
2.55 - 3.05 pm	Tea Break	2.40-2.50 pm	Tea Break	3.00-3.15 pm	Tea Break
3.05 - 4.30 pm	Lecture-4 <b>Prof. M V N Murthy</b> Topic: Tutorial	2.50-4.20 pm	Lecture-8 <b>Prof. D Indumathi</b> Topic: Topic: Tutorial - II	3.15-4.30 pm	Lecture-8 <b>Prof. V Ravindran</b> Topic: Topic: Tutorial - II
14 July 2017 Friday - 4.30 pm, Valedictory Function					

Postal Address