PROFORMA OF EVENTS

1. Name of Department-**PHYSICS**
2. Event-**Webinar**
3. Date-**26.12.2020**
4. Title of The Topic-**THE ORIGIN OF MASS**
5. Name & Designation of Resource Person:-

Dr. SidharthaSankar Panda
Associate Professor of Physics
Berhampur University,Odisha.

6. **Report**-:The origin of mass is one of the deepest mysteries in science. Newton's second law of motion says that the acceleration of a body is given by dividing the force acting upon it by its mass. So a body without mass wouldn't know how to move, because you'd be dividing by zero. Also, in Newton's law of gravity, the mass of an object governs the strength of the force it exerts. One cannot build up an object that gravitates, out of material that does not, so you can't get rid of mass without getting rid of gravity. Finally, the most basic feature of mass in classical mechanics is that it is conserved. For example, when you bring together two bodies, the total mass is just the sum of the individual masses. Altogether, in the Newtonian framework it is difficult to imagine what would constitute an "origin of mass,'' or even what this phrase could possibly mean. In that framework mass just is what it is a primary concept.From Einstein's famous equation $E=mc^2$ of special theory of relativity we should express energy in terms of mass. But we can write the same equation in the alternative form $m=E/c^2$. For example, in the Large Electron Positron collider (LEP), at the CERN laboratory near Geneva, beams of electrons and antielectrons (positrons) were accelerated to enormous energies.Neutrons and protons, which account for almost all visible mass in the Universe, emerged from primordial plasma through a cataclysmic phase transition microseconds after the Big Bang. However, most mass in the Universe is invisible. The existence of dark matter, which interacts with our world so weakly that it is essentially undetectable, has been established from its galactic-scale gravitational effects. The origin of mass in the standard model of particle physics was discussed and some difficulties pointed out. An alternative model, the generation model, will be shown to lead to a different concept of mass: the mass of a body arises from the energy stored in the motion of its constituents, so that if a particle has mass, then it is composite. It is suggested that gravity is a residual interaction arising from the incomplete cancellation of the super-strong color interactions, which bind the fundamental constituents of leptons and quarks.

7. **Other Remark:** The webinar on topic "**The Origin of mass** " was presided by the honorable principal Prof. RanjitRanjanSahoo with IQAC Co-ordinator Dr. MathuriCharanNayak.The welcome address of the resource person was given bythe

convener (HOD of Physics) Mr. BrahmanandaSethi. The invited resource person discusses the topic from various angels so that it will be fruitful to UG & PG students as well as for research scholars those who are working in this field. The interactive session for the participant with the resource person was very nice. At the end of webinar vote of thanks was given by Mr. NityaSundarManik.Other staff members of physics departmentgave their efforts to make the webinar a grand success.

fig.1 The quest for the origin of mass. Search for the standard model Higgs Boson in 19.6-Tev Proton-Antiproton collisions.

WEBINAR
ON
The Origin of Mass

26th December 2020 Saturday, Time: 03:30 pm to 04:30 pm (IST)

Patron

Prof. Ranjit R. Sahoo, Principal

Venue: Google Meet

Organised by
Department of Physics in Association with IQAC
Tulasi Women's College
Kendrapara

Resource Person

Dr. Sidhartha Sankar Panda
Associate prof. of Physics
Berhampur University, Odisha

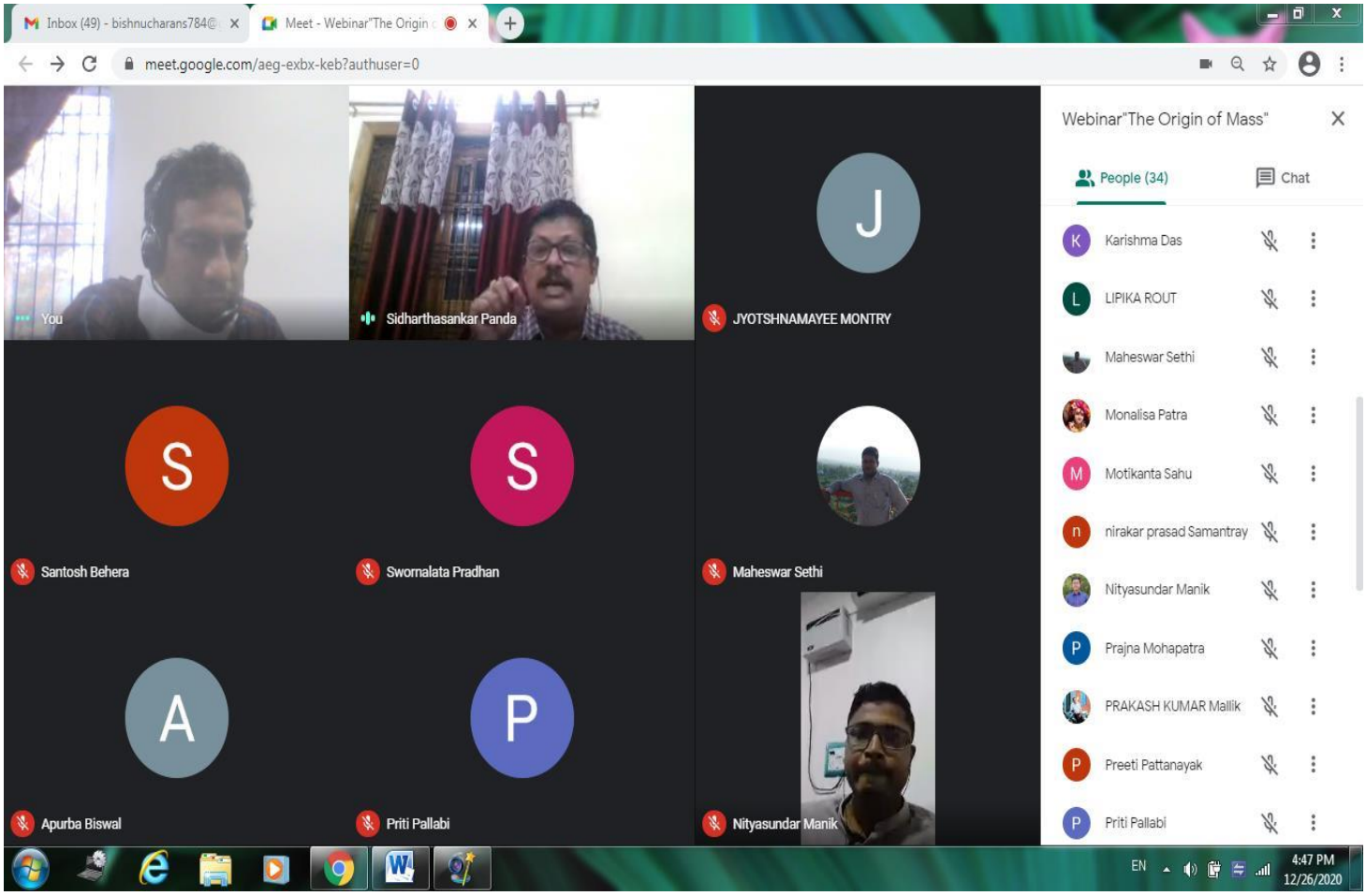
Convener

Mr. Brahmananda Sethi
HOD Dept. of Physics

Dr. Mathuri Charan. Nayak
IQAC CO-Ordinator

Regd. Link : https://forms.gle/vhEfaL8a6WZe4oqz5

E-Certificate will be provided to each participant



ପଦାର୍ଥ ବିଜ୍ଞାନ ବିଭାଗର ୱେବିନାର୍

।। ପ୍ରଭାନ୍ୟୁଜ୍ ।। କେନ୍ଦ୍ରାପଡ଼ା, ୨୭।୧୨ : ସ୍ଥାନୀୟ ତୁଳସୀ ମହିଳା ମହାବିଦ୍ୟାଳୟର ପଦାର୍ଥ ବିଜ୍ଞାନ ବିଭାଗ ତରଫରୁ ଦି ଅରିଜିନ୍ ଅଫ୍ ମାସ୍ ସନ୍ଦର୍ଭ ଉପରେ ଏକ ୱେବିନାର୍ ଅନୁଷ୍ଠିତ ହୋଇଯାଇଛି । ଅଧ୍ୟକ୍ଷ ପ୍ରଫେସର୍ ରଞ୍ଜିତ୍ ରଞ୍ଜନ ସାହୁଙ୍କ ଅଧ୍ୟକ୍ଷତାରେ ଅନୁଷ୍ଠିତ କାର୍ଯ୍ୟକ୍ରମରେ ବ୍ରହ୍ମପୁର ବିଶ୍ୱବିଦ୍ୟାଳୟର ପଦାର୍ଥ ବିଜ୍ଞାନ ବିଭାଗର ଆସୋସିଏଟ୍ ପ୍ରଫେସର୍ ଡ. ସିଦ୍ଧାର୍ଥ ଶଙ୍କର ପଣ୍ଡା ମୁଖ୍ୟବକ୍ତା ଭାବେ ଯୋଗଦେଇ ପ୍ରସଙ୍ଗର ବିଭିନ୍ନ ଦିଗ ଉପରେ ଆଲୋଚନା କରିଥିଲେ । ବିଭାଗୀୟ ମୁଖ୍ୟ ଅଧ୍ୟାପକ ବ୍ରହ୍ମାନନ୍ଦ ସେଠୀ ଅତିଥିମାନଙ୍କର ପରିଚୟ ଦେବା ସହିତ କାର୍ଯ୍ୟକ୍ରମର ଆଭିମୁଖ୍ୟ ସମ୍ପର୍କରେ ସୂଚନା ପ୍ରଦାନ କରିଥିଲେ । ମହାବିଦ୍ୟାଳୟର ଆଇକ୍ୟୁଏସିର ସଂଯୋଜକ ଡ. ମଥୁରୀ ଚରଣ ନାୟକ କାର୍ଯ୍ୟକ୍ରମ ପରିଚାଳନା କରିଥିଲେ । କାର୍ଯ୍ୟକ୍ରମରେ ମହାବିଦ୍ୟାଳୟ ସହିତ ଅନ୍ୟାନ୍ୟ ମହାବିଦ୍ୟାଳୟର ବହୁସଂଖ୍ୟକ ଅଧ୍ୟାପକ, ଅଧ୍ୟାପିକା ଓ ଛାତ୍ରଛାତ୍ରୀ ଅଂଶଗ୍ରହଣ କରିଥିଲେ । ଅଧ୍ୟାପକ ନିତ୍ୟସୁନ୍ଦର ମାଣିକ ଧନ୍ୟବାଦ ଦେଇଥିଲେ ।

12/26/2020

WEBINAR

ON

" THE ORIGIN OF MASS "

Organized by

Department of Physics in Association with Internal Quality Assurance cell (IQAC), Tulasi Women's College, Kendrapara on 26th December, 2020

Certificate of Participation

This is to certify that Dr/Mr/ Mrs/Miss *Barasha Priyadarsini Swain* of *Tulasi Women's College, Kendrapara* has participated in the Webinar organized by Department of Physics in Association with Internal Quality Assurance Cell (IQAC), Tulasi Women's College, Kendrapara on 26th Decemberber, 2020.

Patron
Prof. Ranjit Ranjan Sahoo
Principal, Tulasi Women's College,
Kendrapara

Dr. Mathuri Charan Nayak
Co-ordinator (IQAC),
Tulasi Women's College,
Kendrapara

Convener
Mr. Brahmananda Sethi
H.O.D, Physics
Tulasi Women's College, Kendrapara