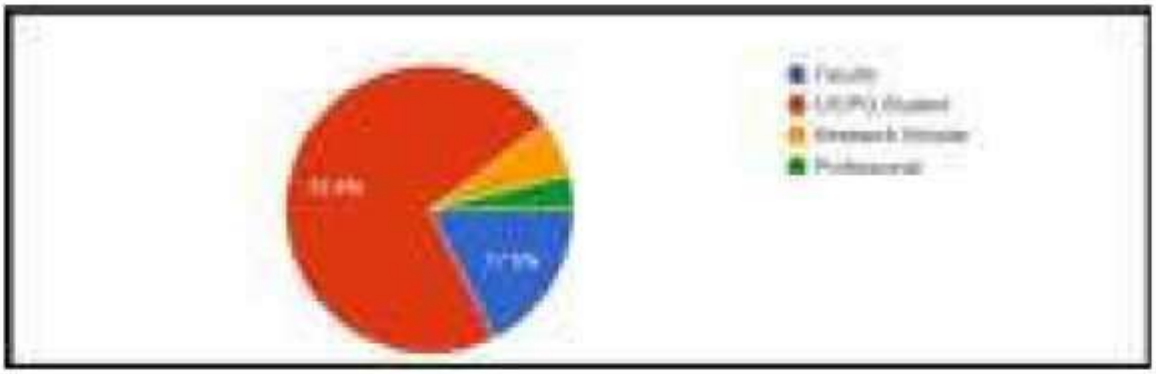
CENTRE OF EDUCATION (IITE)
REPORT ON PHYSICS WEBINAR
"Virtual Lecture Series"
12th to 14th APRIL 2020

As the Nation is under a lock down due to the outbreak of COVID-19, academic activities in the schools, colleges and universities have come to a halt. However, considering the fact that the learning process among the students and faculty members should not be hindered by this lockdown, Indian Institute of Teacher Education has taken initiatives to continue teaching and learning using various online platforms as per the guidelines of the Ministry of Human Resources, Government of India and University Grants Commission. The faculty members have worked very hard to cover the syllabus in time with the help of Google classroom, own you tube channels, Zoom meeting app, Google duo etc. The response and enthusiasm of the students has been enormous to this step. Adding icing to the cake, webinars on different topics in Physics subjects are organized by department of physics, Centre of Education (COE) of IITE under the valuable guidance of honourable vice chancellor Dr Harshad Patel sir. Gujarat Council for Science and Technology (GUJCOST) shown willingness to partially sponsor the webinar. Students are given digital certificates of attendance after the webinar based on their attendance.

Total 480 students, faculties, research scholar and professional across the notation registered for the webinar in 24 hours and we need to disable the link due to capacity of participants in Zoom cloud meeting application. But on the request of some of the faculties and students we have opened the link for another 1 hour and finally total 600 registration has been done. If we look at a comparative picture of the participants of the webinars of the virtual lecture series, we can see that 72.4% of the participants were undergraduate and post graduate students,17.5% were faculty members from different institutions across India and the rest were research scholars and professionals.



Registration details

Eminent personalities in the field of Physics Education were contacted by the Department of Physics, IITE for the webinar during 12th April to 14th April 2020. Prof Pankaj Joshi, Provost, Charusat, Changa, Prof Brijmohan Y Thakore from Department of Physics, Sardar Patel University, VallabhVidyanagar, and Prof Nikesh Shah from department of Physics, Saurashtra University, Rajkot agreed to deliver the talk for the webinar. The platform of the

webinar was open to all physics students, faculty members and Physics enthusiastic across the nation and registration process was completed using Google form without any registration fee. On the first day of inauguration of webinar (12th April, 2020), Dr. Dipika Patel, Coordinator of the webinar introduce webinar, welcome and introduce the speaker on 12th of April. A total of 318 participants could join the zoom and took part in the webinar there were participants who wants to join but due to network traffic they got error code while joining, on the second day (13th April, 2020), there were 384 participants and on the third day 326 participants took part in thee webinar. All the webinars were recorded and recording of the webinar will be kept in the university website from where one can go through the lectures again.

The topic for the first webinar by Prof Brijmohan Y Thakore was Basic Astronomy: understanding of some recent events. Prof Thakore, with an excellent academic career has more than a decade long experience of teaching and research to his credit. His area of expertise being theoretical condensed matter physics and Astronomy. In his talk, he discussed some recent astronomical events like Mercury Transit, Moon Jupiter occultation, Uttarayan/Dakshinayan/Makar Sankranti/Equinox, Partial Solar Eclipse (June 2020), Venus Pleiades conjunction, Moon at Perigee (Super Moon) etc. The talk was indeed very lively because of Prof Thakore's efforts of making otherwise complicated concepts understandable with lots of diagrams, calculations and animations. Though at the beginning of the session, we faced some technical problems; soon we could sort it out and talk continued smoothly thereafter. Students asked lots of questions to the speaker after the talk and many more questions which could not be answered due to time constraint will be answered soon by the speaker once they send their query over a google form to the organisers.

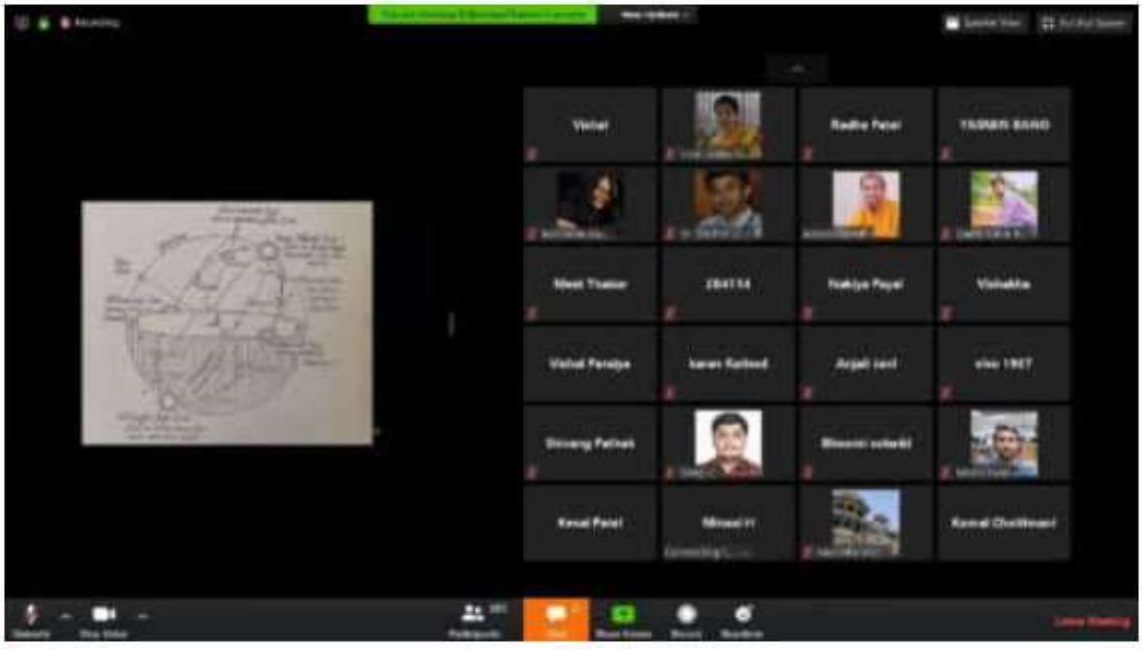
Prof Pankaj Joshi, an internationally acclaimed scientist, was a senior professor in the department of astronomy and Astrophysics at the Tata Institute of Fundamental research, Mumbai before joining CHARUSAT as their provost. Prof Joshi's research interests are General theory of Relativity and cosmology. He has made fundamental contributions in black hole physics and Gravitation theory. He spoke on the topic "Stories of Black Hole and Cosmos". Starting from the birth of a star to the evolution of stars in their life cycle until the death of the star was discussed in a very simple manner by the speaker. Prof Joshi, in his very effortless style of explaining otherwise complicated terminologies of Astrophysics, took the participants through a journey of red giant, planetary nebula, white dwarf, supernova and black holes. He also inspired the students to work hard continuously with excerpts from real life events of legendary scientists Prof Chandrashekhar Subramanian, Albert Einstein etc. He also mentioned about his work experience and work environment in the universities abroad with special mention of his experience with Prof Stephen Hawkings. There were endless questions coming up for Prof Joshi after the talk out of which only a few he could take due to constrained time limit. Other questions will be sent to Prof Joshi for answering; he promised he would answer them soon. Also participants can also ask question to him on his facebook page.

The speaker of the third webinar was Prof. Nikesh A Shah from Department of Physics, Saurashtra University, Rajkot. He spoke on the topic "Nanotechnology". As we all know that nanotechnology is the manipulation of matter with at least one dimension sized from 1 to 100 nanometres, Prof Shah explained the term nanotechnology in a very simple language stating briefly how nanotechnology has evolved as a subject of study and research over the years. He

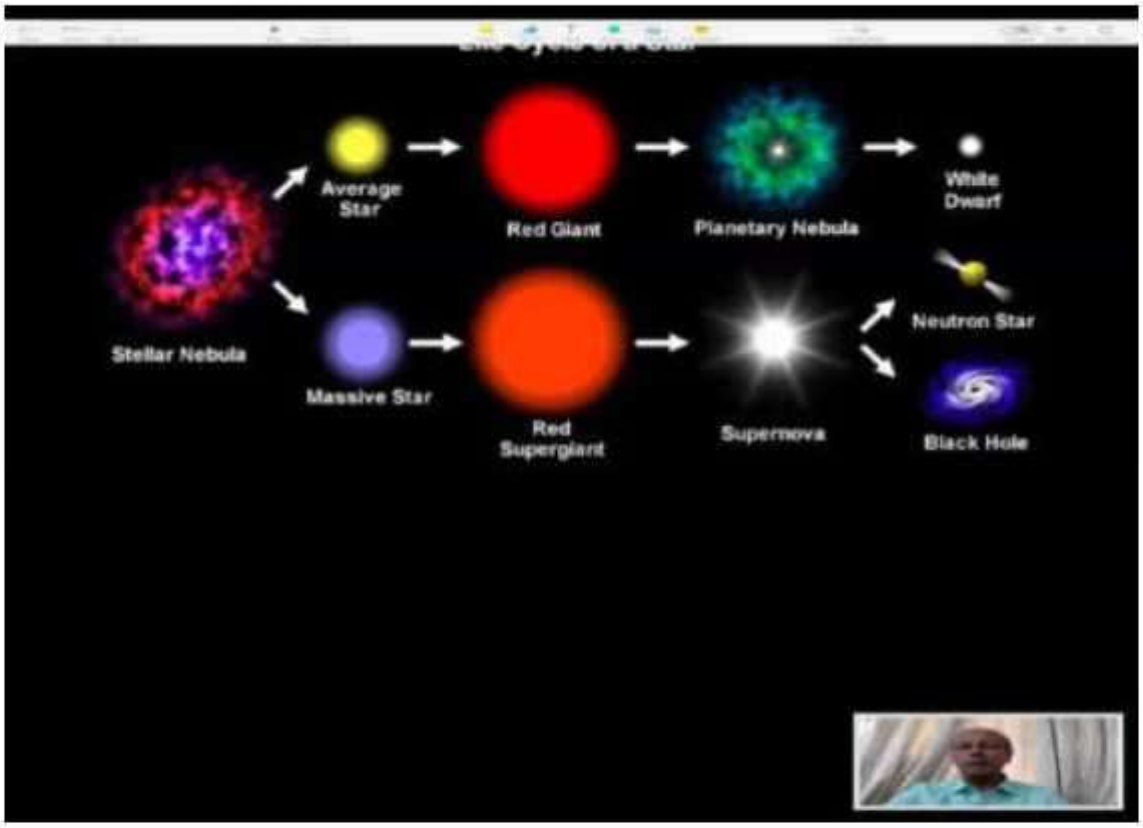
mentioned the contributions of pioneering scientists in the development of nanotechnology like Dr Richard Feynman, Dr Eric Dexler and Dr Norio Taiguchi. After explaining the properties of nanomaterials to explain why nanotechnology is so important these days, he explained different fabrication approaches and characterization methods involved with nanotechnology, like Scanning Electron Microscopy (SEM), Atomic Force Microscopy (AFM) and Dip Pen Lithography. He explained in detail about carbon nanotubes, quantum dots, fullerenes and nano robots too. The animations and videos that Prof Shah used to explain the topic were very interesting and informative ones. Being an expert of the field, there were lots of questions ready for Prof Shah once his lecture was over, to which he happily responded. At this current scenario, one of the attractive points of Prof Shah's talk was that he explained how scientists practicing nanotechnology have come up with different ideas and methods to fight the novel coronavirus in terms of designing reusable face mask, nanomedicines, rapid nano gold based corona virus tests, nanotech surface sanitizers and coronavirus vaccine.

After completion of the webinar e-certificates has been designed and distributed to all the registered participants within three days of completion of webinars through their registered email ID.

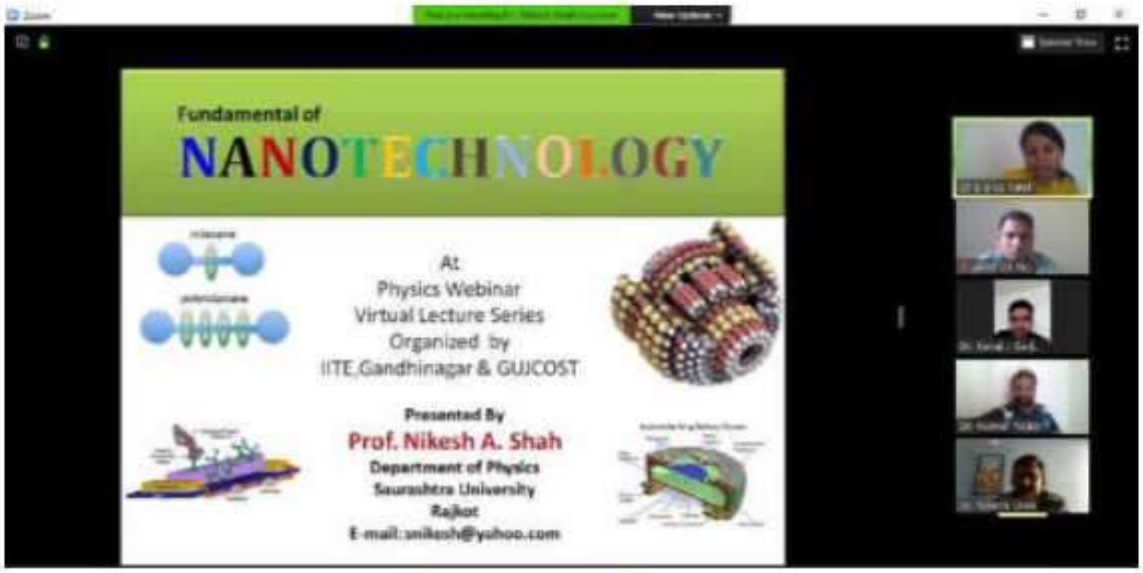
A few Photographs of the webinar:




Venus as Morning Star
...appears in the East just before Sunrise and is lost in the glare of the Sun after Sunrise
East
Dr. A. Sukanthini


Average Star
Red Giant
Planetary Nebula
White Dwarf
Stellar Nebula
Massive Star
Red Supergiant
Supernova
Neutron Star
Black Hole


the story of
collapsing
stars
drpsjoshi's screen


Fundamental of
NANOTECHNOLOGY
At
Physics Webinar
Virtual Lecture Series
Organized by
IITE,Gandhinagar & GUJCOST
Presented By
Prof. Nikesh A. Shah
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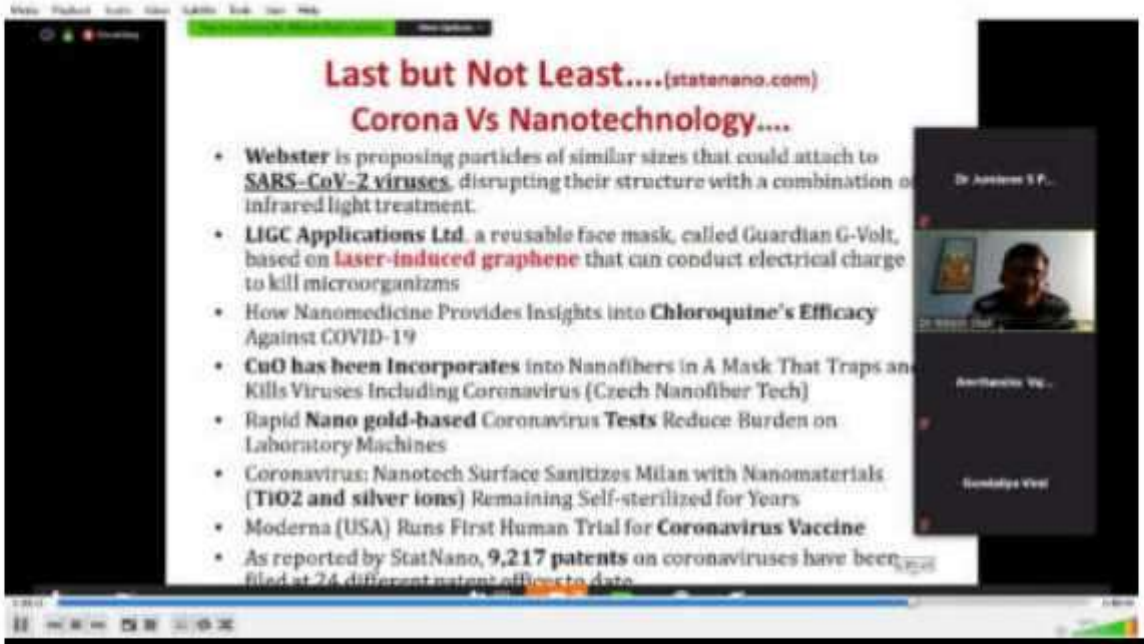
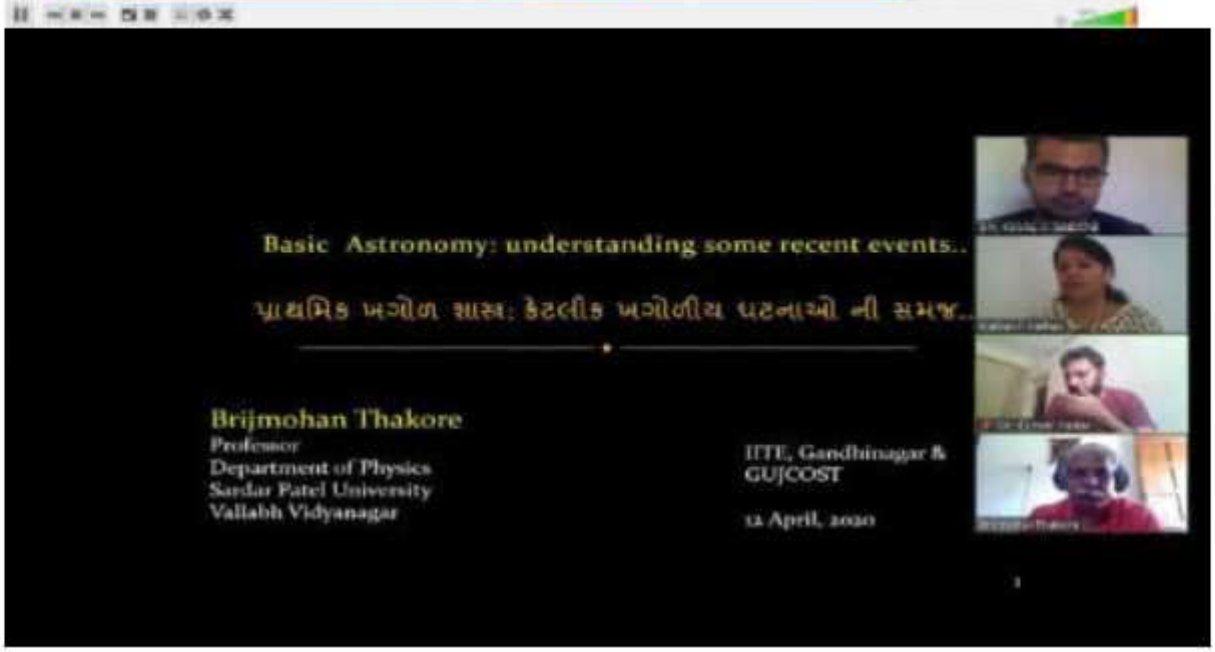
NANOTECHNOLOGY
Prof. Nikesh A. Shah

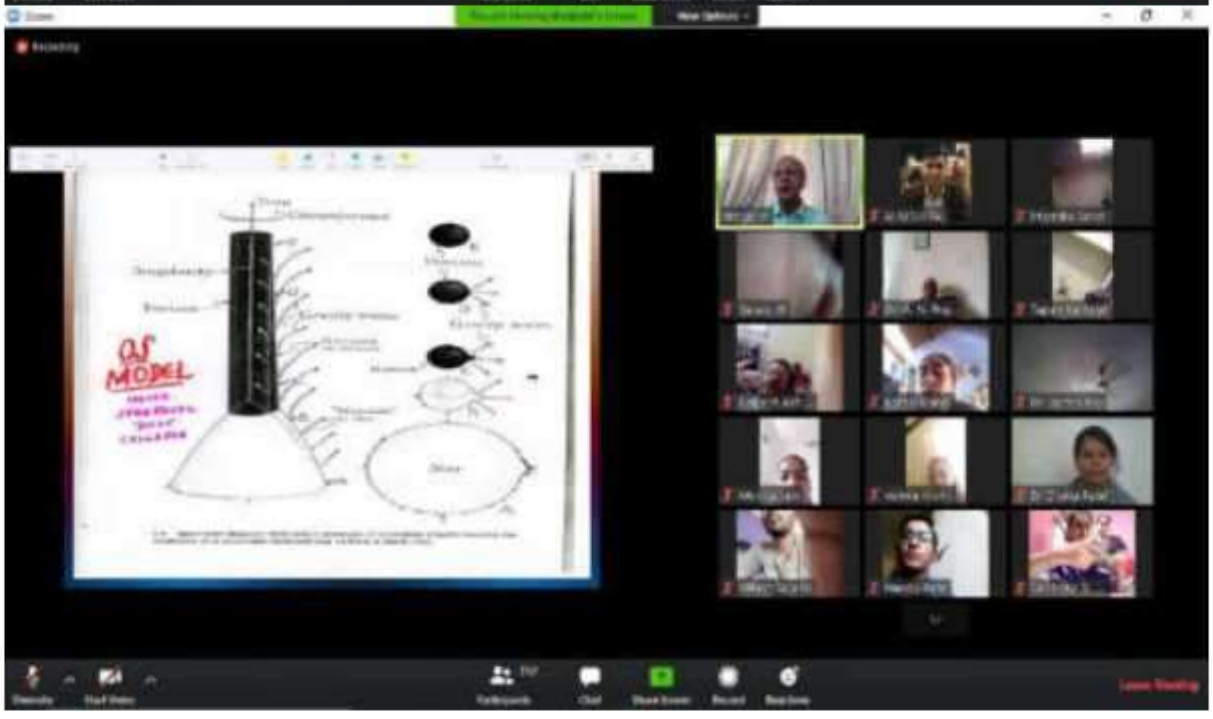

Eric Drexler – 1992
(The Great Pioneer)
"Any powerful technology can be abused."
K. Eric Drexler
Kiran Patel


The Natural World
The Manufactured World
Kiran Patel


Last but Not Least....(statenano.com)
Corona Vs Nanotechnology....
• Webster is proposing particles of similar sizes that could attach to SARS-CoV-2 viruses, disrupting their structure with a combination o infrared light treatment.
• LIGC Applications Ltd. a reusable face mask, called Guardian G-Volt, based on laser-induced graphene that can conduct electrical charge to kill microorganizms
• How Nanomedicine Provides Insights into Chloroquine's Efficacy Against COVID-19
• CuO has been Incorporates into Nanofibers in A Mask That Traps an Kills Viruses Including Coronavirus (Czech Nanofiber Tech)
• Rapid Nano gold-based Coronavirus Tests Reduce Burden on Laboratory Machines
• Coronavirus: Nanotech Surface Sanitizes Milan with Nanomaterials (TiO2 and silver ions) Remaining Self-sterilized for Years
• Moderna (USA) Runs First Human Trial for Coronavirus Vaccine
• As reported by StatNano, 9,217 patents on coronaviruses have been filed at 24 different patent offices to date


Basic Astronomy: understanding some recent events..
પ્રાથમિક ખગોળ જ્ઞાન: કેટલીક ખગોળીય ઘટનાઓ ની સમજ..
Brijmohan Thakore
Professor
Department of Physics
Sardar Patel University
Vallabh Vidyanagar
ITTE, Gandhinagar &
GUJCOST
12 April, 2020


What is Final Fate of Massive Stars?
Antares


QS MODEL


We made this Picture and Scenario, based on the Oppenheimer-Snyder Collapse Calculation
However, the Most Fundamental Question in Gravitation Theory remained very much Unanswered
WHAT IS THE FINAL FATE OF A MASSIVE COLLAPSING STAR?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Prof. Nikesh A. Shah
Mehul Gol
Kiran Patel


Richard Feynman – 1959
(The Great Visionary)
There is Plenty of Room at the Bottom
YOU CAN KNOW