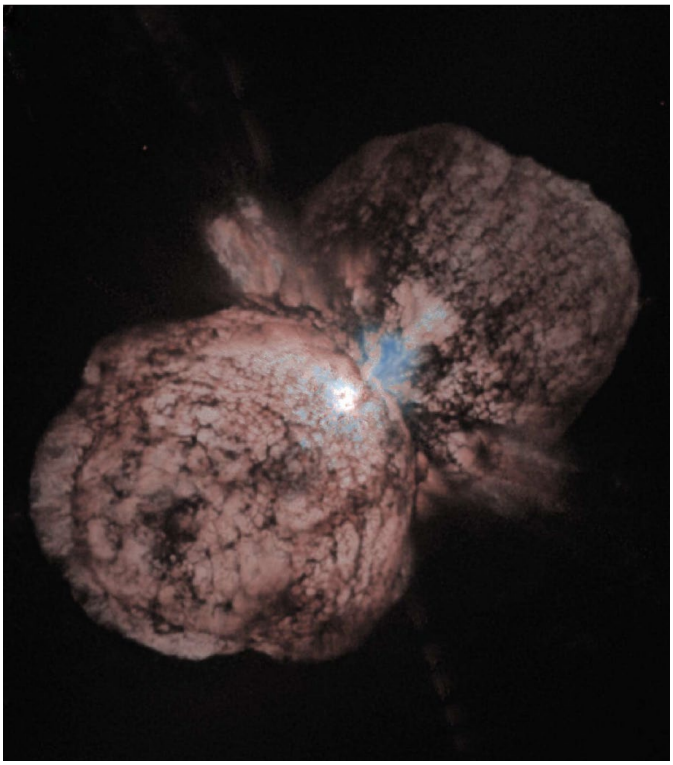
Physics A1 group
Day 1, July 13, 3:10-4:40pm

History of particle acceleration and introduction to laser-driven particle sources

Abstract:

For many years, the high-power-laser community has been trying to production of miniaturized particle accelerators. Laser acceleration of protons occurs as a result of the extremely high electric field gradients created on either the front or rear surface of thin foils illuminated by subpicosecond laser pulses, whose focused intensities exceed 10^{18} W cm^2. Dr. Morace, one of the active pioneers of this field, will introduce you the history and physics of the laser-particle accelerator.



Lecturer: *Dr. MORACE Alessio*

(Institute of Laser Engineering, Osaka University)

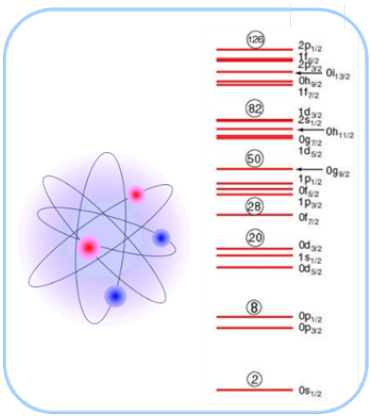
OSAKA UNIVERSITY
School of Science
Graduate School of Science

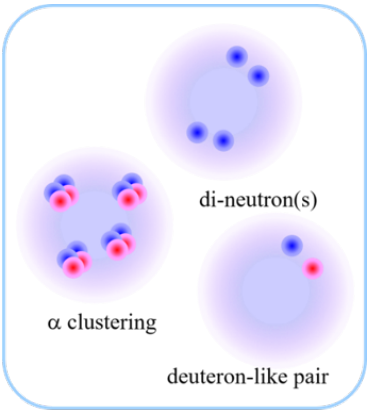
Physics C1 group
Day 3, July 15, 4:50-6:20pm

Who has ever seen the nucleus?

Abstract:

The atomic nucleus is never visible. Also, because the world in which the atomic nucleus lives is dominated by quantum mechanics, its behavior cannot be determined. What and how can we talk about the nucleus then? In this lecture, starting from such a question, I will give an overview of the properties of atomic nuclei that have been clarified so far. In particular, I would like to emphasize how the latest research results using accelerators at Research Center for Nuclear Physics (RCNP),Osaka University, and at the Radioactive Isotope Beam Factory (RIBF), RIKEN have rewritten the common sense of nuclear physics.





Lecturer: *Kazuyuki Ogata*

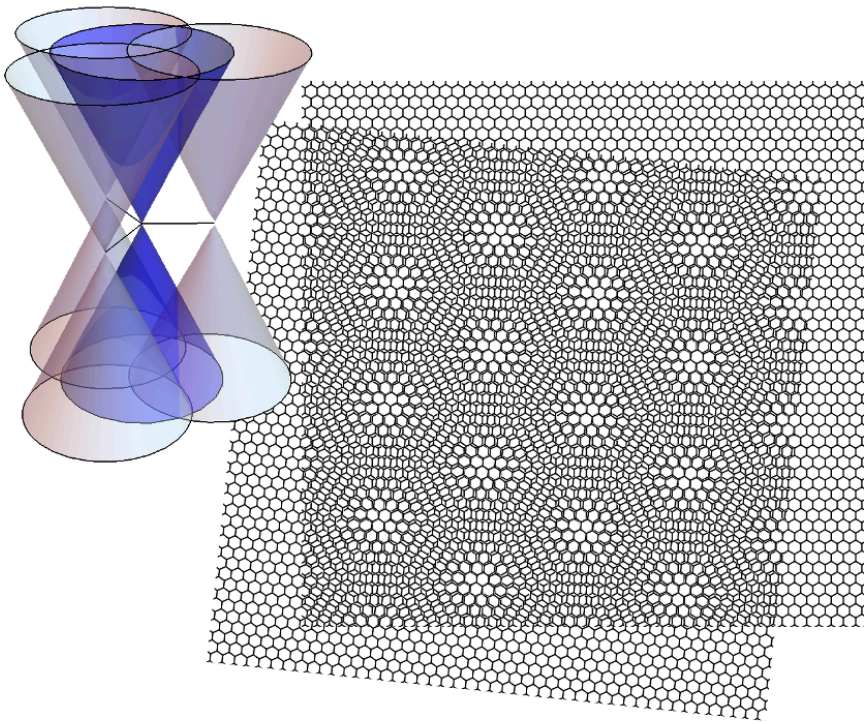
OSAKA UNIVERSITY
School of Science
Graduate School of Science

Physics C2 group
Day 5, July 19, 10:30am-12:00pm

Physics of graphene

Abstract:

Graphene is the thinnest material ever created. It is just a single layer of carbon atoms, but its electronic property is completely different from its 3D counterpart, graphite. The electrons in graphene behave just like neutrinos --- they travel at a constant speed and never stop. In this lecture, I review some interesting physical phenomena of graphene, and also introduce the recent cutting edge research.



Lecturer: *Mikito Koshino*

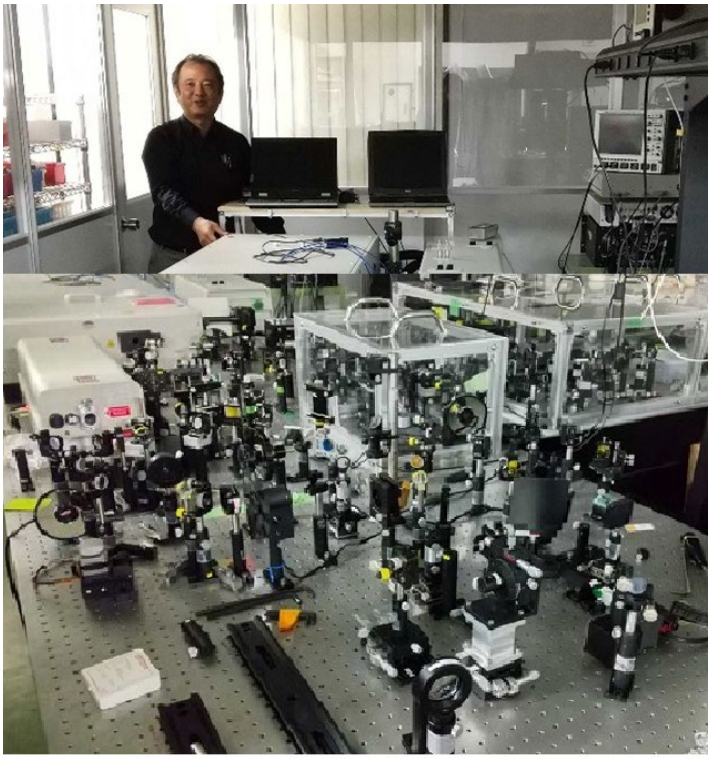
OSAKA UNIVERSITY
School of Science
Graduate School of Science

Physics B1 group
Day 5, July 19, 1:30-3:00pm

Introduction to Ultrafast Laser Science

Abstract:

Since laser was invented in 1958, the innovative methods to produce ultrashort light pulses has been developing. At present leaded to opening the door to the attoseconds science which would be promising and fertile. In this lecture, starting from the laser principle and characteristics, the development of ultrafast laser systems will be reviewed. In attosecond region, one can manipulate electrons in materials while the motion of atoms freezes.



Lecturer: *Yasuo Kanematsu*

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