

Information and Announcements



Physical Research Laboratory, India (Ahmedabad, Gujarat)

The Physical Research Laboratory (PRL) is a leading research institute of the country engaged in basic research in several areas of experimental and theoretical physics and earth sciences. Founded by Vikram A Sarabhai in 1947, the initial research activities of the laboratory were focused on cosmic rays and upper atmospheric studies. The initiation of space research in the country in the early sixties and the subsequent development of the national space programme began at PRL and the laboratory can justly claim being the cradle of space science research in India. With a core academic faculty of about 60 scientists and total staff strength of about 500, PRL is an autonomous research institute under the Department of Space, Govt. of India.

Areas of Research

The laboratory has dynamic academic and research programmes under the following areas:

- Astronomy, astrophysics and solar physics
- Atomic and molecular physics
- Nuclear and particle physics
- Laser physics and quantum optics
- Gravitation and relativity
- Plasma physics
- Non-linear dynamics and chaos
- Physics and chemistry of the earth's lower and upper atmosphere, ionosphere and magnetosphere
- Origin and evolution of the solar system using meteorites and cosmic samples
- Earth sciences including oceanography, hydrology and study of past climates

The Campuses

The main campus of PRL at Ahmedabad is located in one of the greenest areas of the city, adjacent to the Gujarat University Campus. The quiet location and the greenery within and

around the campus make it an ideal place for scholarly pursuit. Close to the main campus of the laboratory, there is a modern guest house complex with in-house catering facility, a student's hostel in the main housing colony near the main campus of the laboratory; and in the two housing colonies of the Department of Space located in Vastrapur and Bopal on the western outskirts of the city.

In addition to the main campus, PRL has a campus at Thaltej on the western outskirts of the city. Astronomical observations as well as some ionospheric studies are carried out from our observatory atop Gurushikar peak at Mt. Abu, which provides an ideal location for carrying out such studies.

Facilities

PRL has an excellent library and laboratory facilities, state-of-the-art-computing and workshop facilities and communication systems such as e-mail, fax etc.

The computer facilities at PRL consist of 5 IBM RS 6000/580 servers with software packages like IMSL, MATHEMATICA, AVS, IDL etc. The servers are connected to Internet and have more than 150 local nodes connected through local area network (LAN). Thus, most of the offices and laboratories are connected to main frame computer through the LAN. The servers are planned to be upgraded to 64 bit computing with SMP. The laboratory has a homepage on the website (<http://www.prl.ernet.in>) which gives details about the academic programmes, research opportunities, meetings, conferences, colloquia/seminars, forthcoming events etc.

The PRL library has more than 15,000 books and also subscribes to more than 200 scientific and technical journals. It also has the facility of Online Public Access Catalogue (OPAC) which provides access to the library books, journals, reports and publications of PRL either from the mainframe computer or from a PC connected to the LAN.

The laboratory has a well-equipped workshop, excellent glass blowing facility and a liquid nitrogen plant, which provides support for the various experimental programmes. The experimental groups have their own electronics laboratory to meet their specific R and D requirements. It also has a well-equipped auditorium where international and national conferences are held from time to time. In-house photography and documentation facilities support the various requirements of the laboratory.

Research Opportunities

The laboratory has programmes for pursuing research in the areas listed above leading to the doctoral degree as well as opportunities for postdoctoral research. It also offers short term training programmes for college teachers, engineering and diploma students.



Doctoral (PhD) Programme: PRL is one of the leading centres in the country for doctoral and postdoctoral research. At any time there are about forty research scholars and twenty-five postdoctoral fellows. The process of selection of research scholars for the PhD programme in physics is based on the joint entrance screening test (JEST), a joint programme of several leading institutions of the country, conducted around February every year. For research scholarship in earth sciences, encompassing the disciplines of geology, geophysics, geochemistry and marine sciences, a separate written test is conducted in the month of June/July every year. Those who qualify in the written test are required to appear for an oral interview, which is generally held during the first week of July. Selected candidates, referred to as Research Scholars, are paid a monthly stipend of Rs 5,500/- which is raised after two years, based on appropriate evaluation, to Rs 6,000/- and after four years to Rs 6,500/-. In addition, a book grant of Rs 5,000/- per year is paid for four years.

Research scholars have to complete a comprehensive course work during their first year. The course work is aimed at introducing them to the new fields, which are pursued at the laboratory. Successful completion of the course work is a prerequisite for the continuation of the scholarship. Research scholars are offered subsidised accommodation and boarding facilities in a hostel close to the laboratory.

Postdoctoral Programme: PRL offers Postdoctoral Fellowship to research scientists who have already obtained PhD degree or have submitted thesis for PhD degree in any of the areas mentioned above, for a maximum period of two years. Postdoctoral Fellows are encouraged to pursue research in association with the faculty of the laboratory. The fellowship amount ranges from Rs 8,500/- to Rs 10,000/- per month (Rs 8,500/- per month for those who have submitted the PhD thesis and awaiting the degree and Rs 9,000/- per month for those with PhD degree. The fellowship is raised to Rs 10,000/- per month in the second year after due process of review). Accommodation is provided in the PDF Hostel near the laboratory, if available or house rent as per Government of India rules is provided.

Postdoctoral positions are advertised widely through national newspapers/journals/newsletters but applications are also accepted round the year from young scientists (less than 35 years of age) on the prescribed format which can be downloaded from the PRL homepage on the website or can be obtained on request from the Head, Academic Services on e-mail (psharma@prl.ernet.in).

Training Opportunities

College Teachers Training Programme: The laboratory organised short-term (3-4 weeks) refresher courses during summer for college teachers of Gujarat involved in teaching physics at graduate level. The themes of refresher courses selected are such that these are relevant to

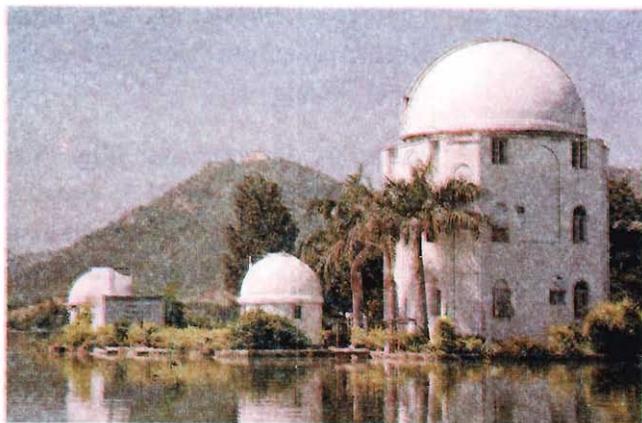


Figure 3. Udaipur Solar Observatory located on an island in the Fatehsagar Lake at Udaipur, Rajasthan

the curriculum being taught as well as the practical work being done at the BSc level.

Summer Training Programme:

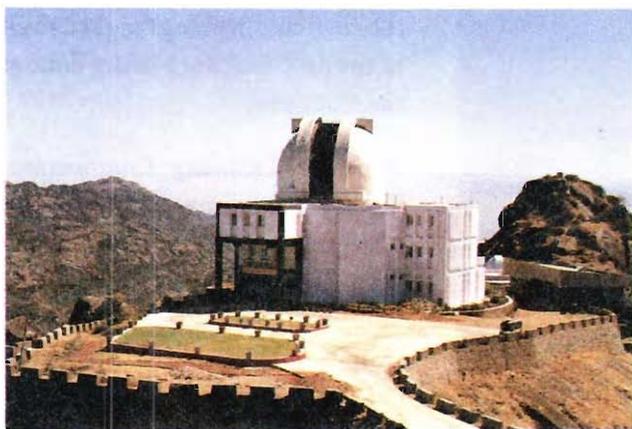
This programme is meant for providing opportunity for students who have appeared for the examination of MSc (pre.)/BTech (7th semester)/MSc integrated courses (8th/9th semester) in physics to participate in a short-term (six to eight weeks) project in the laboratory. The programme

is usually conducted during May/June. Selection of trainees is done on the basis of the academic record of the applicant and recommendation of the Head of the Department or a professor under whom the student has been studying. A consolidated stipend of Rs 3000/- per month and second class return railway fare from place of residence is provided to the selected candidates. Accommodation for summer trainees is also provided at a nominal charge in the hostels of the laboratory.

Application Oriented Opportunities: PRL offers opportunities for B Tech (8th semester) students in computer science/computer applications under which the students can work on a project for about 3 months (May-August). A stipend for Rs 4,000/- per month, second class return train fare and hostel facilities at nominal rent are offered to these students.

Project Training for Engineers: The laboratory offers training to engineering and diploma students in the fields of electronics & communication, computer engineering as well as master of computer applications (MCA). About 50 students selected from various engineering colleges/polytechnics carry out their project work for one/two semesters under the supervision of scientists/engineers of the laboratory.

Visitors' Programmes: The laboratory has very active visiting scientists' programme under which eminent international and national scientists, including several Nobel laureates have visited and lectured at the laboratory. There are several invited visiting positions at PRL which are offered to distinguished scientists from within the country as well as from abroad to visit and lecture at PRL. These include the Vikram Sarabhai Professorship, Ramanathan Professorship as well as several visiting positions at appropriate levels. In addition, scientists visit PRL under various exchange programmes supported by Indian National Science Academy (INSA), Theoretical Physics Seminar Circuit (TPSC), International Centre for



Infrared Observatory at Gurushikhar, Mt. Abu, Rajasthan.

research proposals. Associateship is offered for a maximum period of 4 months, which may be available during a period of two years from the date of the offer. Associates can visit PRL up to four times during the period of associateship and are provided a stipend of Rs 8,000/- per month to meet their travel and lodging/boarding expenses in connection with their visit.

Academic Meetings: Besides the regular seminars/colloquia by the scientists of the laboratory and the visiting scientists, national as well as international workshops/symposia/conferences in various fields are being organised frequently by the laboratory.

Advanced schools like those conducted by the Science and Engineering Research Council (SERC) of the Department of Science and Technology (DST) are also organised at PRL from time to time in various disciplines. PRL encourages its scientists to collaborate both nationally and internationally.

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Theoretical Physics (ICTP), Third World Academy of Sciences (TWAS), Royal Society etc.

Associate Programme: The associate programme at PRL is aimed at encouraging short-term visitors from universities/academic institutions to visit PRL for working in collaboration with scientists of PRL on research programmes of mutual interest. This programme also aims at enabling exchange of ideas and discussions on collaborative projects/formulation of



PRL Main Campus at Ahmedabad showing the multi-storied building and the Library Building in the foreground.

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