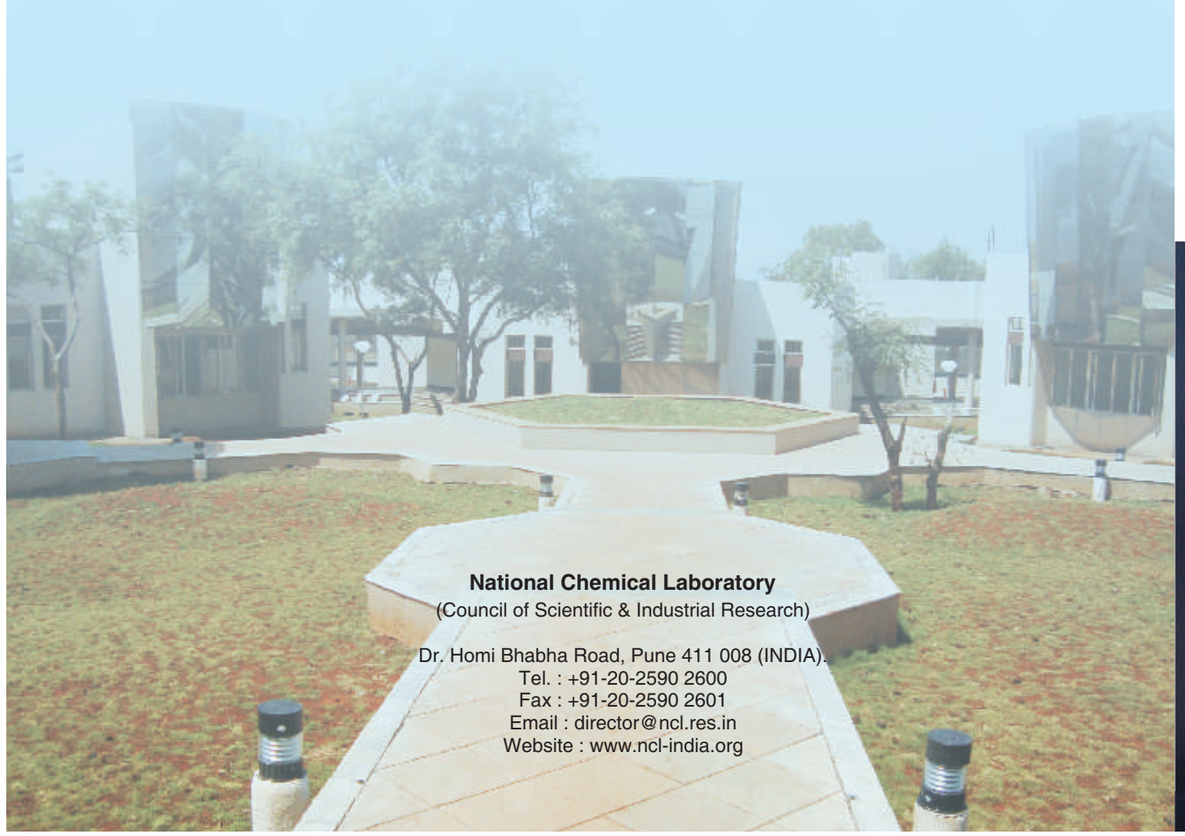
Where the mind is without fear and the head is held high;
Where knowledge is free; Where the world has not been broken up
into fragments by narrow domestic walls; Where words come
out from the depth of truth; Where tireless striving stretches
its arms towards perfection; Where the clear stream of reason
has not lost its way, Into the dreary desert sand of dead habit;
Where the mind is led forward by thee into ever-widening
thought and action-
Into that heaven of freedom, my Father,
let my country awake.

Rabindranath Tagore
Geetanjali



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POLYMERS & ADVANCED MATERIALS LABORATORY

POLYMERS & ADVANCED MATERIALS LABORATORY

बहुलक
एवं
प्रगत पदार्थ
प्रयोगशाला

NATIONAL CHEMICAL LABORATORY

PUNE

जिथे मन भीतीविरहित आहे आणि जिथे मस्तक ताठ ठेवून चालता येतं,
जिथे विनाशुल्क ज्ञान मिळतं,
जेथील जगाचे संकुचित विचारांनी विभाजन केले गेलेले नाही,
जिथे शब्द सत्याच्या गांभिर्यातून जन्म घेतात,
जिथे अविरत परिश्रम आपले हात पूर्णत्वाकडे पसरतात,
जिथे कारणाचा स्वच्छ झरा वाईट कृत्यांच्या वाळवंटाकडे किंचितही झुकला नाही,
जिथे विचार आणि कृतींच्या सदा विस्तारलेल्या जगाकडे मनाला तू नेतो आहेस,
त्या स्वातंत्र्याच्या स्वर्गात, माझ्या पित्या, माझ्या जन्मभूमीस जाग येऊ दे.

रविन्द्रनाथ टागोर
गीतांजली

DIAMOND JUBILEE POLYMERS AND ADVANCED MATERIALS LABORATORY

CSIR – NCL is proud to unveil the new Diamond Jubilee Polymers and Advanced Materials Laboratory today, the first new laboratory building to come on our campus in over two decades. This facility, built at a cost of about Rs 18 crores, is now ready for occupation and will house various laboratories dealing with organic, inorganic and polymeric materials, cutting across sizes from nano- to macro scale The facility will also integrate synthetic chemists, material scientists, computational scientists, physicists and engineers and provide ample opportunity to collaborate and explore shared ideas.

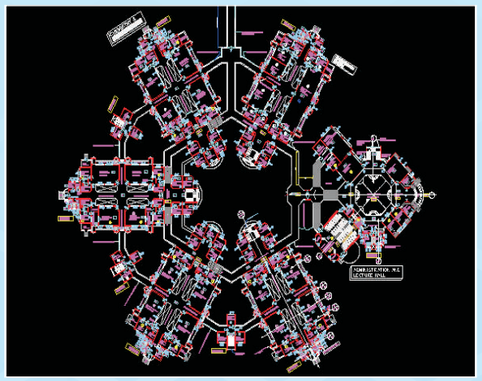
Science and technology is becoming more collaborative. Disruptive innovations are increasingly occurring at the interfaces of discipline. Theory, experiments and measurement sciences are becoming seamlessly integrated to create new insights and knowledge. The vision of a lone scientist labouring in a corner of a laboratory and coming up with new ideas is now part of the history of science. Whereas, individual excellence in specific domain of science is a prerequisite, this alone is not sufficient to solve the challenging scientific problems of the future. Partnership and collaboration across disciplines is essential if science has to create value to society.

Ability to work in teams and collaborate is a culture that present day scientists must learn and practice. Breaking down barriers and walls between scientific disciplines require a facilitative environment, namely, freedom of thought and expression, a healthy disrespect for hierarchy and loosening the power of divisions and departments which often tend to promote loyalty and parochial thinking. The traditional pyramidal organizational structure of a strong leader with many followers must be replaced by self managed teams of scientists with many thought leaders working in a flat organizational structure with a healthy attitude towards sharing of resources and a participative style of governance.

Advanced materials are truly an area where collaboration is an absolute necessity. New materials are coming from different disciplines of chemistry, namely organic, inorganic, biological and polymeric compounds. Another distinguishing feature of this science is that it is more closely linked to applications. Many useful new materials are really hybrids, with the inorganic material contributing to the structure and the organic or biological component providing the function. Complex analytical methods are needed to probe the structure and properties of such materials. Their applications demand a deep understanding of physics, biology or medicine.

The Polymers and Advanced Material Laboratory is dedicated to this future vision of science that NCL hopes to practice, where scientists, young and old, will be free to pursue excellence in science and collectively create value of the science that they practice for the good of the people.

The architectural design of the building is based on the belief that structure follows functions and habitat



defines culture. The laboratory is laid out in the form of a hexagon, the quintessential geometric shape, which is the heart of chemistry. The wings of the laboratory radiate out from the central core connected by corridors akin to chemical bonds. The building has been designed to meet the needs of the future, namely, to promote a culture of collaboration in an interdisciplinary environment and create an ambience where transparency, freedom of inquiry and scientific excellence will flourish.

The Laboratory building complex has a total area of 71,252 sq feet and can accommodate upto 200 scientists and students. The Central Atrium open to skylight has a 100 seater theater style lecture room, a conference room, pantry and dining room, meeting and office rooms. There are five laboratory wings consisting of twenty modular laboratories. The building has been designed for maximizing natural light and provides a dexterous interplay of the five primal natural elements, namely, sun, earth, water, air and sky. The laboratories meet contemporary standards of safety, health and environment and are designed to maximize the productivity and efficiency of the people who occupy the facility. Energy efficiency has been incorporated as a basic component of the design. The building is fully IT enabled with fibre optics and wireless connectivity as well as communication systems

The laboratories will house diverse activities related to the synthesis of molecular and hybrid materials with precisely defined size, shape, structure and properties. A common analytical laboratory will house facilities needed for material characterization and analysis. A laboratory for new energy materials, such as fuel cells, batteries, super capacitors, and solar energy will be located in this building. A 'molecule to device' fabrication facility for solar cells is also being set up.

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A laboratory building is a symbol of the aspiration and the spirit of the organization. The Polymers and Advanced Materials embodies the culture of NCL and showcases the values which the laboratory holds high, namely, seamless learning environment, a high degree of cross functional and interdisciplinary interactions, a culture of sharing facilities, a safe and secure environment for people to work, an ambience which stimulates creativity and encourage original thinking and a high level of transparency of activities and functions.

Situated in the southwestern outskirts of the NCL campus, the new structure acknowledges the existence of other older heritage buildings on the NCL campus, while at the same time articulating contemporary form and styling. The result is a dynamically vibrant spatial statement that blends into the ambience of the NCL campus at the same time defining its own distinct identity.