

## Press Release

### **Shiv Nadar University Develops a Novel Coating to Beat Air-Pollution Effects on Materials of Everyday Use**

**New Delhi, 2 September 2019: Shiv Nadar University**, a comprehensive, multidisciplinary, research-focused and student-centric university, today announced the invention of a unique super-hydrophobic (water repelling) coating to eliminate discoloration of the surface, physical damage or corrosion on a long-term basis. Developed by extracting the nano-silica particles of rice husk (an agriculture waste product), it also has the potential to offer an alternative to crop residue burning by farmers, a major cause for air pollution in the northern part of the country. The self-cleaning coating is a cost-effective and eco-friendly substitute for the existing toxic paints and coatings available in the market. Inspired by the super-hydrophobic nature of the lotus leaves, the coating is developed by Dr. Harpreet Singh Grewal, Dr. Harpreet Arora, Associate Professors, and their research team at the School of Engineering at Shiv Nadar University.

The research has been sponsored by the Government of India's Council of Scientific & Industrial Research (CSIR), and has been tested under extreme weather conditions including rain and storms. Results of the research indicate that the exposure to the outdoor conditions has no impact on the coating. Another important feature of the coating is that it is non-toxic and can be applied on all household appliances, buildings, automobiles and industrial components to help elongate their life. The existing paints and coatings available in the market contain toxic elements like Lead, Hexavalent Chromium or chemical compounds which cause serious health effects, such as reproductive problems, birth defects, and aggravated asthma due to air pollution.

Highlighting the importance of this invention coming out of agricultural waste, **Dr Rupamanjari Ghosh, Vice Chancellor, Shiv Nadar University, Uttar Pradesh**, said, *"Dust and corrosion have a detrimental impact on the industrial and mechanical operations especially in regions that deal with the problem of heightened air pollution. Excessive corrosion leads to unnecessary wear-and-tear of machines and devices, reducing their efficacy and functional life. It is extremely rewarding, therefore, to see researchers at the Shiv Nadar University find a creative and sustainable solution to this wide-spread problem."*

Corrosion has a huge economic and environmental impact on virtually all facets of the infrastructure, from highways, bridges, and buildings to oil and gas rigs to factories and industrial plants. In addition to causing severe damage and being a potent threat to public safety, corrosion disrupts operations and requires extensive repair and replacement of failed assets. While this is understood, what is often left out of the equation or overlooked is the financial impact of this on the country. Studies have indicated that the global cost of corrosion is around US\$ 2.5 trillion, which is equivalent to 3.4 % of the global GDP.

This research has been acclaimed globally, and has been published by the prestigious and specialized scientific journal, *Progress in Organic Coatings*.

#### **Notes to the Editor:**

**About Shiv Nadar University, National Capital Region (NCR)**

Shiv Nadar University ([www.snu.edu.in](http://www.snu.edu.in)) in the National Capital Region, a Shiv Nadar Foundation initiative, is a multidisciplinary, student-centric, research-focused university offering a wide range of academic programs at the undergraduate, postgraduate and doctoral level. Shiv Nadar University's multidisciplinary curriculum provides students a strong foundation in disciplines in the humanities and social sciences, natural sciences, technology and engineering studies, communications and management, while enabling them to gain mastery of a subject of their choosing. Taught by world-class faculty, undergraduate education at the University is designed to develop students with the breadth of vision, knowledge, skills and attitudes required to succeed in the careers of the 21st century. Located on a 286-acre campus in India's National Capital Region, Shiv Nadar University is a private philanthropic institution established in 2011 through an act of the State of Uttar Pradesh. The university has been recognized as 'University of the Year', under the category – 'in existence for less than 10 years' at the 3rd FICCI Higher Education Excellence Awards.

## **About Shiv Nadar Foundation**

The Shiv Nadar Foundation ([www.ShivNadarFoundation.org](http://www.ShivNadarFoundation.org)) has been established by Shiv Nadar, Founder, HCL - a \$8.9 billion leading technology and healthcare enterprise. The Foundation's mission is to contribute to the process of national development and social transformation by establishing institutions and undertaking new initiatives in the fields of education and culture. The Foundation is committed to the creation of a more equitable, merit-based society by empowering individuals to bridge the socio-economic divide through philanthropy based transformational education.

The Foundation set up the SSN Institutions ([www.SSN.edu.in](http://www.SSN.edu.in)) in 1996, comprising the SSN College of Engineering (already a highly ranked private engineering college in India), in Chennai, Tamil Nadu. The Foundation has also set up VidyaGyan, a residential leadership academy for meritorious rural children, at Bulandshar and Sitapur in Uttar Pradesh. In addition, the Foundation runs the Shiv Nadar University ([www.snu.edu.in](http://www.snu.edu.in)), an international multidisciplinary university with strong research orientation located in Greater Noida in India's National Capital Region and the Shiv Nadar School ([www.shivnadarschool.edu.in](http://www.shivnadarschool.edu.in)), a network of progressive urban schools across India aimed to provide children with education that creates lifelong learners. The Foundation has also set up the Kiran Nadar Museum of Art ([www.knma.in](http://www.knma.in)), India's largest private philanthropic museum in modern and contemporary art with the vision to take art to the common public.

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