



Embassy of India, Berne

INDIA SCIENCE AND INNOVATION WEEKLY

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*Ask the right questions, and nature will open the door to her secrets
- Dr. C.V. Raman, The Nobel Prize in Physics 1930*

Indian Scientists developed nanorods-based oxygen sensor

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Scientist at the Centre for Nano and Soft Matter Sciences (CeNS) an autonomous research institute under the Department of Science & Technology, Govt. of India, developed and fabricated a metal oxide semiconductor (MOS) nanorods array-based oxygen sensor which works at room temperature with assistance of UV irradiation and can detect broad ppm range of oxygen gas concentrations. The Scientists also found that the Nanorod based oxygen sensor working at room temperature could save lives in places like underground mines and higher altitudes and improve the accuracy of numerous experiments being conducted in research labs.

Scientists at CSIR-NCL Pune developed modern novel hybrid technology called SWASTIIK' to disinfect water

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Indian Scientists at CSIR-NCL Pune with support from the Water Technology Initiative of the Department of Science and Technology (DST), Govt. of India, the novel hybrid technology called SWASTIIK' a solution to disinfect water completely and also offer possible health benefits of natural oils. The novel hybrid technology called SWASTIIK' involves boiling of a liquid as a result of pressure reduction (cavitation) and also uses natural oils having antimicrobial properties. This technology can eliminate harmful bacteria, including antimicrobial-resistant bacteria, economically.

Indian Institute of Science Education and Research (IISER) developed affordable oxygen concentrator

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Scientists at Indian Institute of Science Education and Research (IISER), Bhopal has developed a low-cost oxygen concentrator 'Oxycon' that is capable of providing 93-95 percent pure oxygen at the rate of 3 liters per minute. The cost of 'Oxycon' is INR 20 thousand. IISER Bhopal also reported that 'Oxycon' has been developed with 'open-source' technology and materials, which has helped in reducing it.

Defence Research and Development Organisation (DRDO) developed Single Crystal Blades Technology

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Defence Research and Development Organisation (DRDO) has developed Single Crystal Blades technology, which can be used in helicopter engine application. As a part of indigenous Helicopter Development Program for helicopter engine application, DRDO supplied 60 nos. of Single Crystal Blades to Hindustan Aeronautics Ltd. (HAL). DRDO also developed a stringent non-destructive evaluation (NDE) methodology for the blades along with the technique for determining their crystallographic orientations.

Special Update: Indian Scientists found promising technique for early detection of development or strengthening of tropical cyclones

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Indian Scientists from IIT Kharagpur, devised a novel method using Eddy detection technique to investigate the formative stages (early detection of development or strengthening of tropical cyclones) and advance detection time of tropical cyclogenesis in the North Indian Ocean region. The novel method was found and devised from the support from the Department of Science & Technology, Govt. of India under the Climate Change Programme (CCP). The highlights of the novel methods are as follows:

- Atmospheric detection of pre-cyclonic vortices and its lead detection time.
- Eddy detection tool to understand spatio-temporal evolution of pre-cyclonic eddies.
- Establish the lead detection time for tropical cyclogenesis in the Indian Ocean.
- Establish threshold values for vortices in developing and non-developing cases.
- Vertical migration and evolution of eddies in the atmospheric column