Press release Discovering science in Africa

Nanotechnology in Egypt

From April 22 to June 30

Opening
18:30, April 22
followed by a débate
about Research in Egypt

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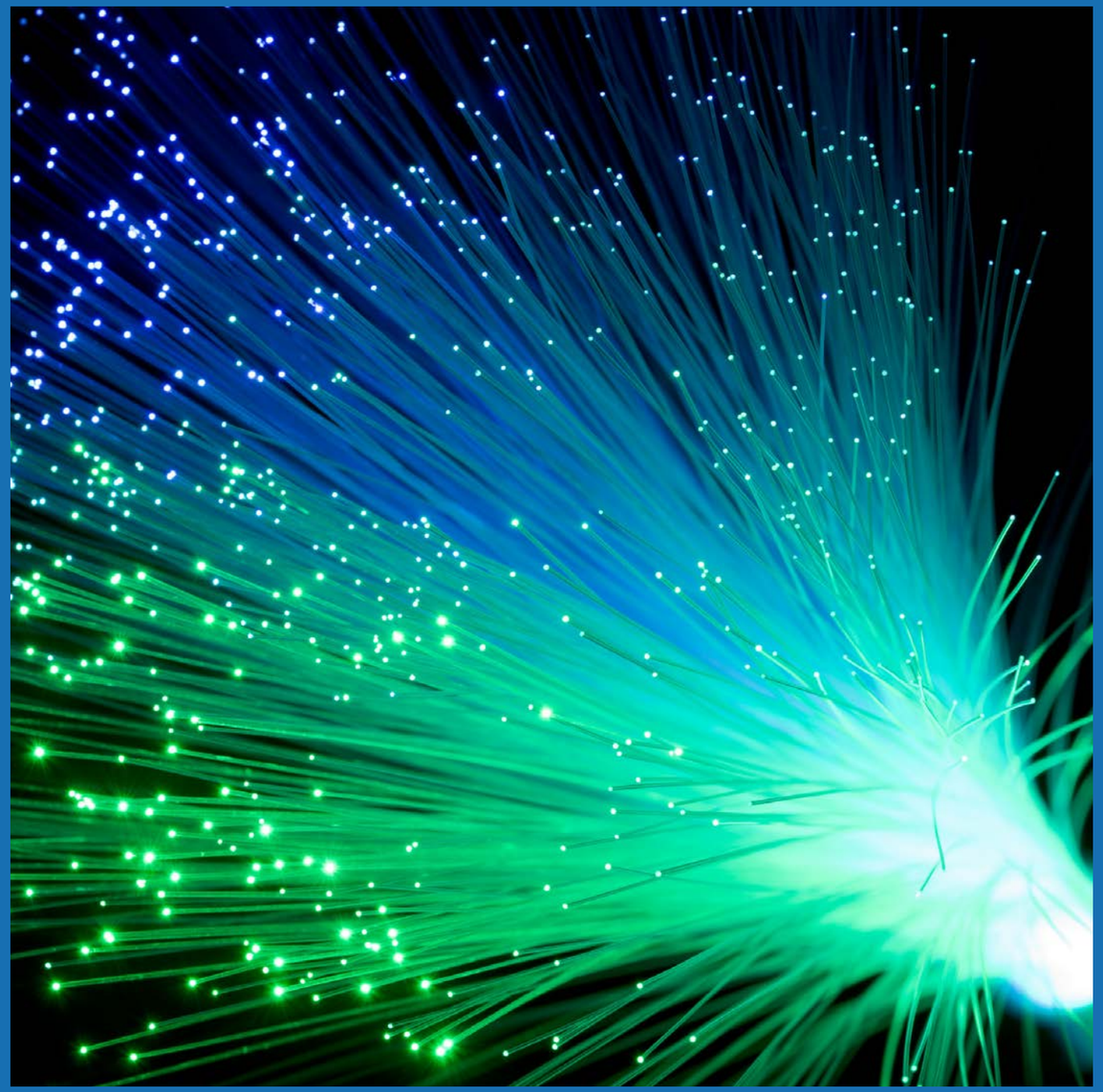

Exhibition Discovering science in Africa

Nanotechnology in Egypt

From April 22 to June 30

A million times smaller than a millimeter, this is the size of the nanomaterials that Egyptian researchers work on. Graphene nanotubes, medical nanosensors, nanoparticles and nanowires are some examples of the many structures used in the composition of the latest generation products, from ultra-light tennis rackets to high efficiency photovoltaic panels, as well as cancer treatments.

Far from the stereotypes that reduce Africa to poverty, disease and war, researchers are leading cutting-edge work here, particularly in nanophotonics, the study of the interaction between light and matter on a nanometric scale. This exhibition aims to introduce you to nanotechnologies, and more specifically nanophotonics, through the words of Egyptian researchers and paints a picture of research here in Egypt.

This exhibition was created as part of the project Voyage-partage initiated by Taïna Cluzeau and is supported by the French association Fais ta science! with the aim of raising public awareness of scientific work in Africa. It was made possible thanks to the support of the French embassy in Cairo, the French Institute of Egypt and the Center for Photonics and Smart Materials in Zewail city. www.voyage-partage.fr

The exhibition is presented in French and Arabic, English translation available at the reception

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Exhibition route

The exhibition is divided into three parts. The first presents the recent evolution of scientific research in Egypt, the second a portrait of Egyptian researchers and the last, carried out in collaboration with researchers at the Photonics and Smart Materials Center of Zewail city, explains to the public what is nanophotonics, this field of nanotechnologies consisting of the study of the interaction between light and matter.

Egypt's Advances in Nanotechnology

Solar panels, water purifiers and virus detectors are a few examples of the many applications Egyptian researchers have been able to develop and improve by taking advantage of nanotechnologies. This science allows, by manipulating atoms and molecules at a nanoscale (a million times smaller than a millimeter), the modification of the properties of different materials, such as color, strength, hardness, electrical conductivity , elasticity and heat tolerance.

In Egypt, nanoscience research is benefiting from recent government investment to develop science in the country. The constitution adopted in 2014 makes mandatory the investment of 1% of GDP for research and development. Even if this amount is not yet totally achieved, Egypt has nevertheless experienced in 2018 the second largest increase in terms of publications of scientific research articles worldwide, with a 15.9% increase compared to 2017 according to the scientific journal Nature. In addition to supporting researchers' innovation and in order to make the Egyptian economy more competitive, it is also necessary for the research to meet the needs of national industry, which to date has relied a lot on foreign expertise. The nanotechnology sector will certainly be one of the areas that will pave the way for cooperation between research and industry.

«I am not aiming just to keep publishing research articles more and more as we have already have more than 100 publications in good academic journals. Actually, every time I have published a paper I 'm happy about it for 5 minutes at most and then I have to forget it to get started on the next new idea. The main target for me is now to transfer my knowledge to my students to help them start their career.»

Dr Mohamed Farhat

«We always worry about the equipment and ensuring all necessary materials are available. It is therefore difficult just to focus just on our research.»

Dr Inas Kamal Battisha

Portraits of researchers

In this section, five Egyptian researchers tell us why they chose this job, why they prefer to stay in Egypt, what their goals are and also what difficulties they face daily.

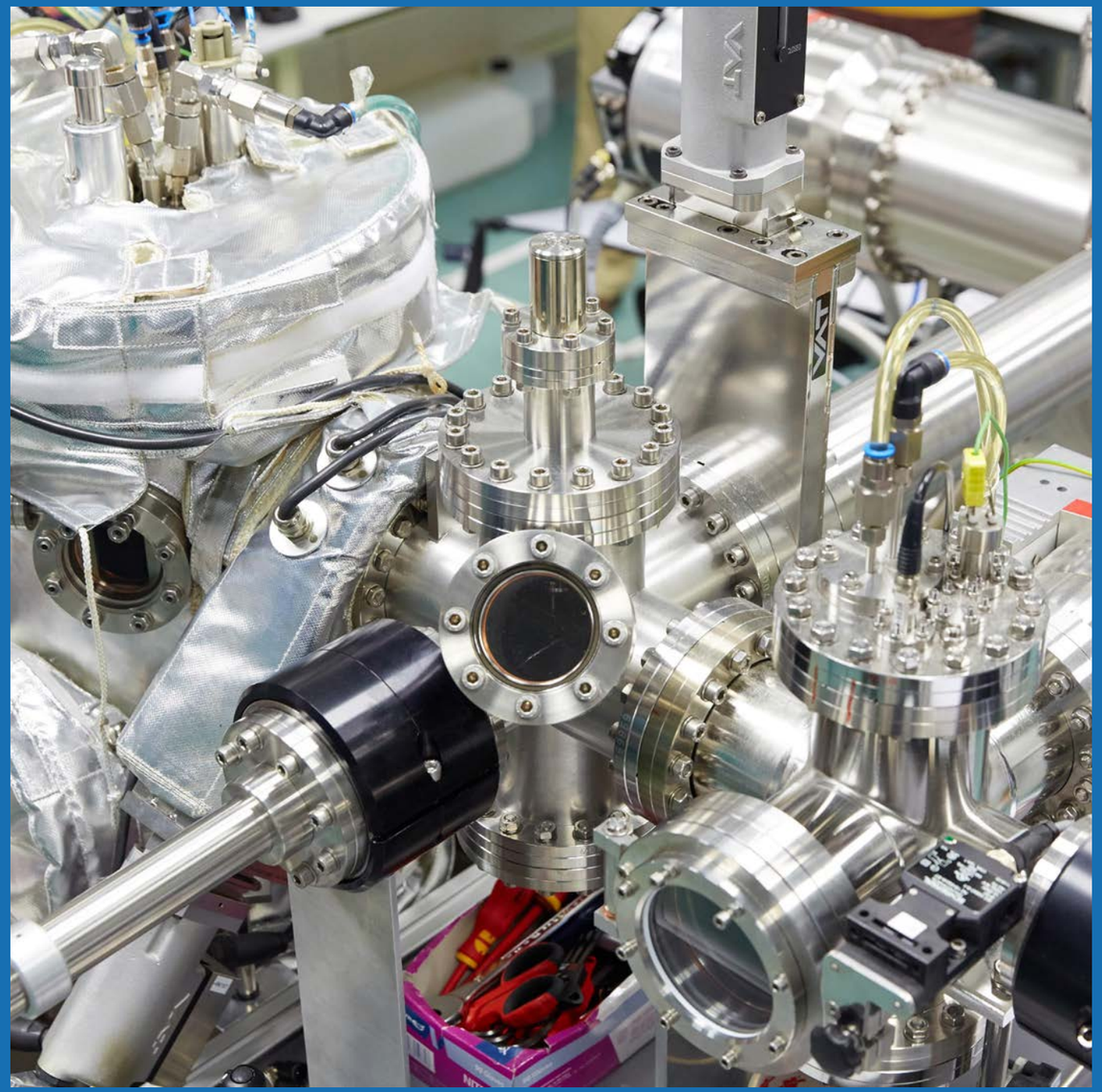
«The first time I knew I loved science was at high school in chemistry class. My chemistry teacher was exceptional. She let us do some simple experiments involving volcanoes, gas explosions and colored fire. It was real fun and I became curious to understand why these things were happening and that's why I wanted to keep studying chemistry. For me, studying science was much easier than any other topic at school. So it became my dream to continue my career in the field of science. I was lucky that my family supported my choice and encouraged me to follow my dreams.

Dr Shaimaa Ali Mohamed

Between light and matter, nanophotonics explained by researchers

Nanophotonic is the study of the interaction between light and matter at nanoscale. Although this exotic name can make you think to some science fiction novel, nanophotonics is a booming research area started to be investigated in the early 90's and it is meant to improve our everyday life with many applications. In fact, knowing how light and matter interact together at that scale allows researchers to create all type of nano devices from trapping light solar cells to sensors deducting gas concentration from light reflection or new methods of encryption. The progresses made in nanophotonics research, especially by Egyptian teams like the Center for Photonic and Smart Material, impact directly on the development of solutions for specifical egyptian problematics as the construction of cheap solar cell or the design of nanosensors measuring glucose concentration in diabetic patient.

in this last section of the exhibition, The Zewail Center for Photonic and Smart Material's team explains you what nanophotonics is and how it works.



Opening and debate

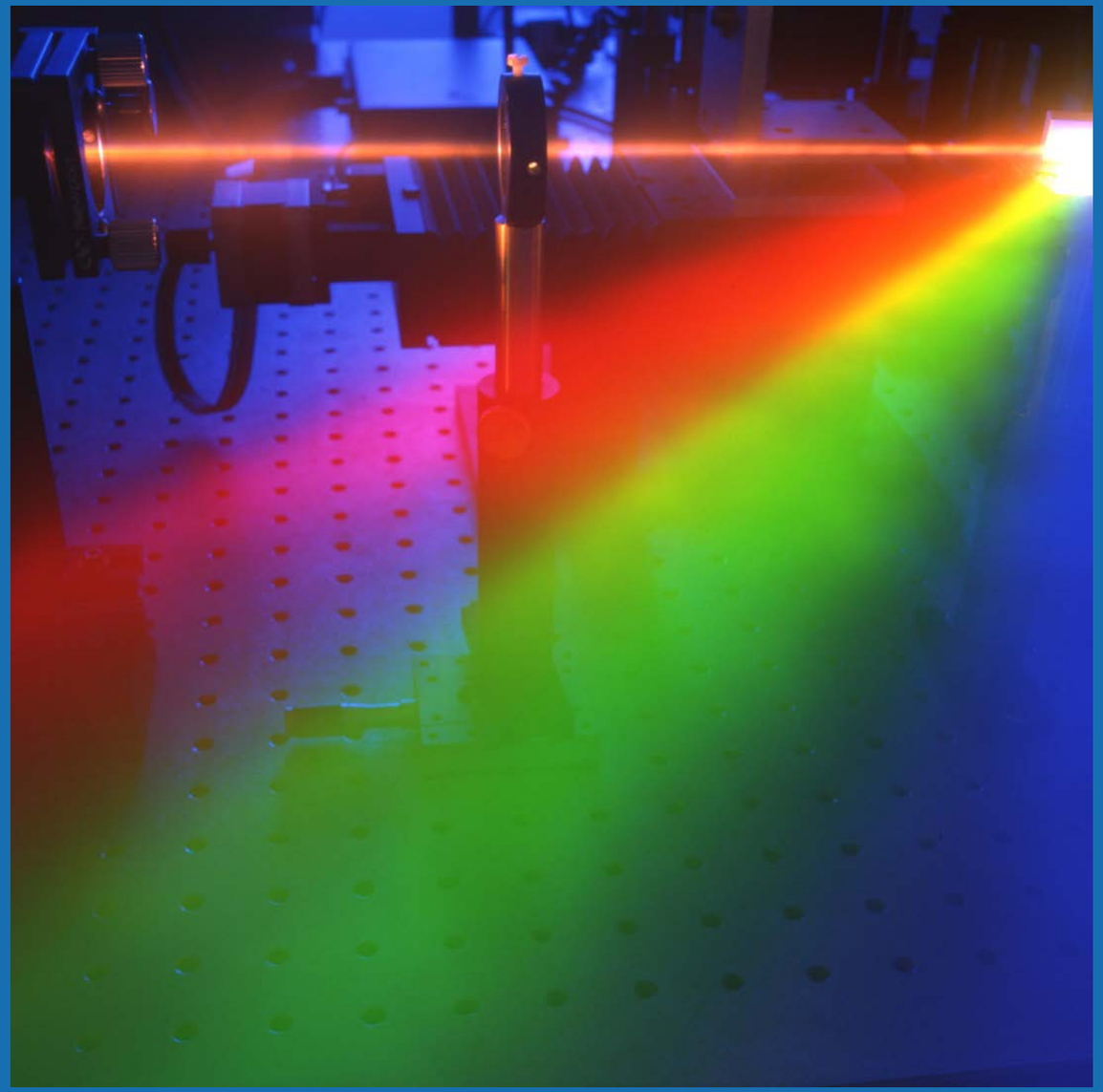
The opening of the exhibition will take place on April 22 at 18:30 and will be followed by a debate moderated by science journalist Dalia Abdel Salam, editor-in-chief of the magazine For Science. The debate will focus on the importance for Egypt to develop her own scientific research and how this may impact on, among other goals for Egypt, becoming competitive in the global market for innovation and being able to find solutions to national issues such as sustainable energy management, heritage protection, and water treatment.

Speakers:

- Dr Sameh Soror, Supervisor of the Scientific and Cultural Sector at the Academy of scientific research and technology
- Pr Salah Obayya, Head of the Center for Photonics and Smart Material and fellow of the African Academy of Sciences
- Dr Ahmed Sader, Chief of research and head of R&D department in NanoTech
- Dr Rym Abderrahmani, Attachée for science, French Institute of Egypt

Moderator of the debate:

- Dalia Abdel Salam, editor in chief of For science, the arabic version of Scientific American



Le voyage de Taïna

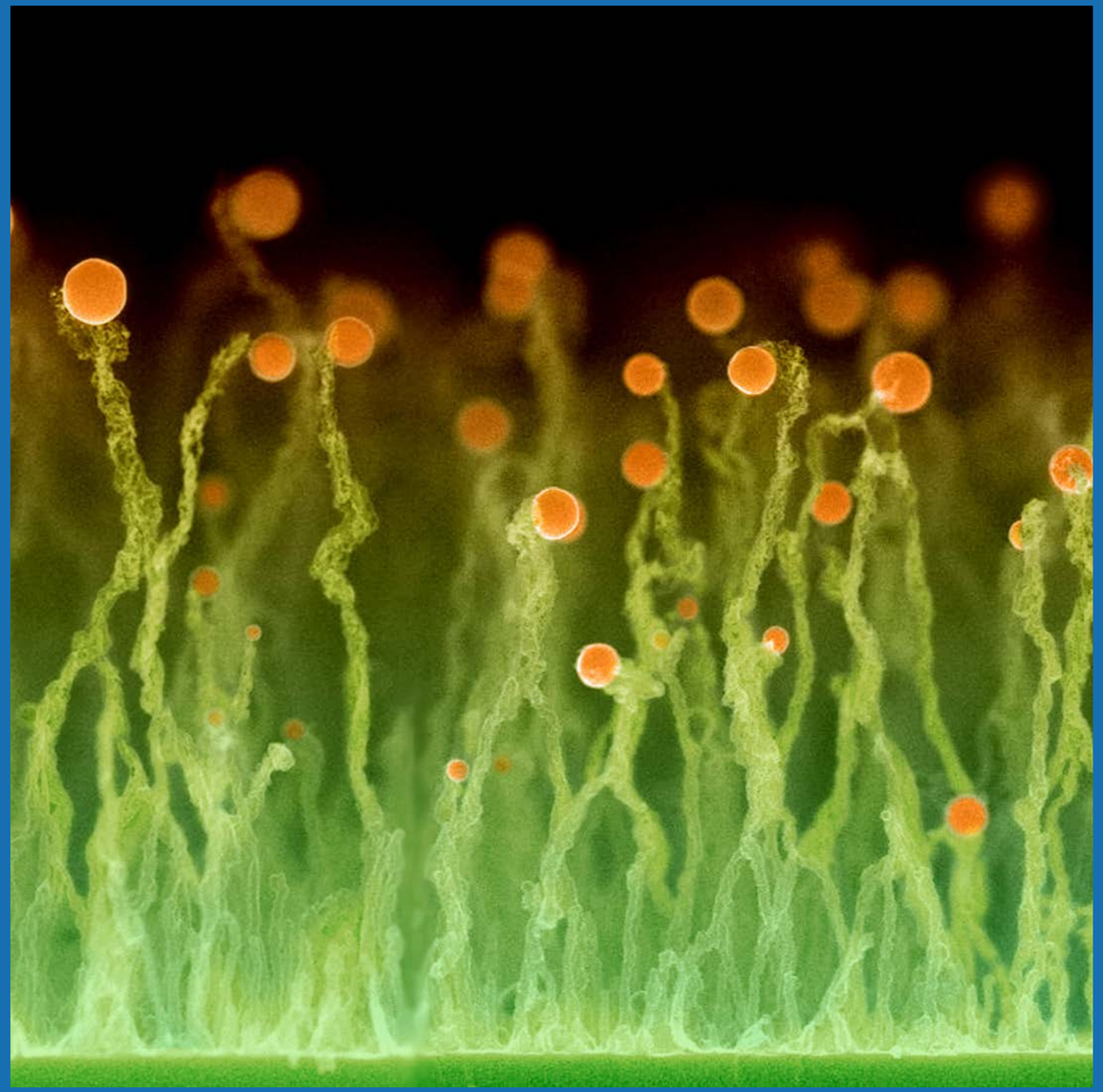
This exhibition has been created as a part of the project : Taïna's travel : scientific meetings in the four corners of Africa. The purpose of this travel is threefold. The first objective of this project is the popularization of science. Everyone should have access to scientific knowledge, and also know the pathways that lead to the job of researcher. Knowledge is one of the key to emancipation. The second objective is to show, especially to Westerners, that Africa is not only war, misery and disease, topics that the media often reduce this continent to. Africa is also young, dynamic and a source of new knowledge that is not talked about enough. Finally, I want to highlight one of the common points between human being : our curiosity to understand how the world around us works. If spirituality makes it possible to imagine the Why of things, science is THE field which, whatever the country or the culture, allows us to understand the How. Researchers around the world, whatever their lifestyle, have the same goal, to «understand». This universal value of science is one of the messages that this project wishes to convey.

LE VOYAGE DE TAINA
Rencontres scientifiques aux quatre coins du monde

The Association Fais ta Science! (Make your Science!)

«Fais ta science ! is a French association, created in 2012. After focusing first on the publication of a scientific experimentation magazine for children, it now supports the production of scientific exhibitions around the world via the project: Taïna's travel.

FAIS TA SCIENCE!

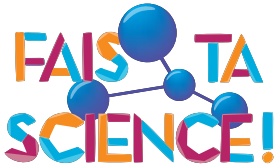


French embassy in Egypt - French Institute of Egypt

Voyage-partage is supported by the French Embassy in Cairo via the French Institute of Egypt. They finance part of the first exhibition of the project in Africa. Placed under the supervision of the Ministry of Europe and Foreign Affairs and the Ministry of Culture, the French Institute is entrusted, within the framework of the policy and orientations decided by the State, to carry a renewed ambition for the diplomacy of influence. It must contribute to the influence of France abroad in a reinforced dialogue with foreign cultures and respond to the demand of France in a process of listening, partnership and openness. The French Institute of Egypt's mission is to contribute to the promotion of French culture, language and expertise in Egypt; to strengthen cooperation between Egypt and France in all areas: educational and linguistic, cultural, academic, scientific and technical. http://institutfrancais-egypte.com/

Zewail city of science and technology

It is the egyptian university that actively participates in the project through researchers from the Center for Photonics and Smart Materials. The University of Science and Technology, was created to train a new generation of scientists and entrepreneurs, able to think critically and creatively, mastering the basic sciences and possessing a deep knowledge of interdisciplinary fields of engineering science fundamental and applied. It houses a collection of state-of-the-art research institutes, particularly to find solutions to Egyptian issues. For example, research is currently underway to find alternative sources of energy, including solar energy, which Egypt has in abundance.



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