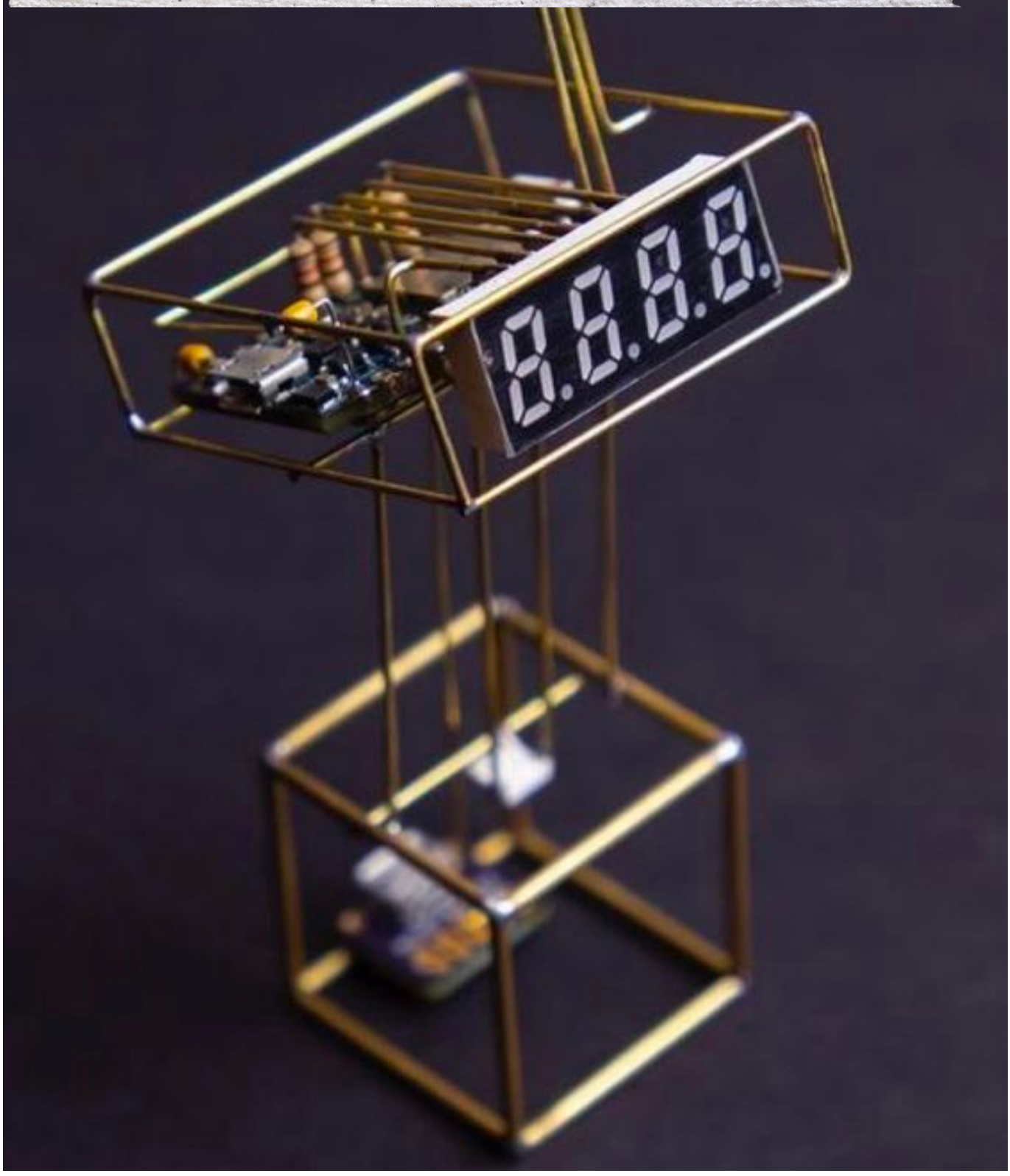
VOLUME 6: ISSUE 4 JULY 2023

THE ZENITH



CONTENT

New superconductors can be built atom by atom

The future of electronics will be based on novel kinds of materials. Sometimes, however, the naturally occurring topology of atoms makes it difficult for new physical effects to be created. To tackle this problem, researchers at the University of Zurich have now successfully designed superconductors one atom at a time, creating new states of matter.

What will the computer of the future look like? How will it work? The search for answers to these questions is a major driver of basic physical research. There are several possible scenarios, ranging from the further development of classical electronics to neuromorphic computing and quantum computers. The common element in all these approaches is that they are based on novel physical effects, some of which have so far only been predicted in theory. Researchers go to great lengths and use state-of-the-art equipment in their quest for new quantum materials that will enable them to create such effects. But what if there are no suitable materials that occur naturally?

Novel approach to superconductivity

In a recent study published in Nature Physics, the research group of UZH Professor Titus Neupert, working closely together with physicists at the Max Planck Institute of Microstructure Physics in Halle (Germany), presented a possible solution. The researchers made the required materials themselves -- one atom at a time. They are focusing on novel types of superconductors, which are particularly interesting because they offer zero electrical resistance at low temperatures. Sometimes referred to as "ideal diamagnets," superconductors are used in many quantum computers due to their extraordinary interactions with magnetic fields. Theoretical physicists have spent years researching and predicting various superconducting states. "However, only a small number have so far been conclusively demonstrated in materials," says Professor Neupert.

New superconductors can be built atom by atom

Two new types of superconductivity

In their exciting collaboration, the UZH researchers predicted in theory how the atoms should be arranged to create a new superconductive phase, and the team in Germany then conducted experiments to implement the relevant topology. Using a scanning tunneling microscope, they moved and deposited the atoms in the right place with atomic precision. The same method was also used to measure the system's magnetic and superconductive properties. By depositing chromium atoms on the surface of superconducting niobium, the researchers were able to create two new types of superconductivity. Similar methods had previously been used to manipulate metal atoms and molecules, but until now it has never been possible to make two-dimensional superconductors with this approach.

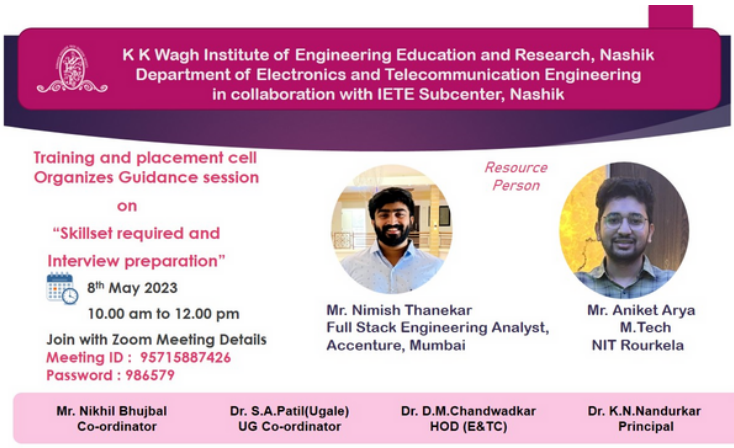
The results not only confirm the physicists' theoretical predictions, but also give them reason to speculate about what other new states of matter might be created in this way, and how they could be used in the quantum computers of the future.

Science Daily
July 13, 2023
By: University of Zurich

Expert Lectures/Seminars/Courses Organised

- Department of Electronics and Telecommunication Engineering of K. K. Wagh Institute of Engineering Education and Research Nashik, Students' Association of Electronics Engineers (SAEE) in collaboration with IETE Nashik subcenter organized an expert talk on "Latest Trends in Power Electronics" by Mr. Pravin B. Borkar (Manager, Siemens India Ltd., Nashik) on 6th May 2023.

- Training and Placement Cell and the Department of Electronics and Telecommunication Engineering of K. K. Wagh Institute of Engineering Education and Research Nashik, Students' Association of Electronics Engineers (SAEE) in collaboration with IETE Nashik subcenter organized a webinar on “Skillset required and Interview preparation” by Mr. Nimish Thanekar (Full Stack Engineering Analyst, Accenture, Mumbai) and Mr. Aniket Arya (M. Tech, NIT Rourkela) on 8th May 2023.



Expert Lectures/Seminars/Courses Organised

- Department of Electronics and Telecommunication Engineering of K. K. Wagh Institute of Engineering Education and Research Nashik, Students' Association of Electronics Engineers (SAEE) in collaboration with IETE Nashik subcenter organized a webinar on “Recent Trends in Network Security” by Mr. Amey Tambe (Director, SoftTech Data Securities, Pune) on 11th May 2023.

- Department of Electronics and Telecommunication Engineering of K. K. Wagh Institute of Engineering Education and Research Nashik, Students' Association of Electronics Engineers (SAEE) in collaboration with IETE Nashik subcenter organized an expert talk on “Latest Trends in Cellular Network” by Mr. Mahesh Kadam (Circle Lead/Asst. Manager - Mumbai Circle, Samsung India Electronics Pvt. Ltd.) on 13th May 2023.

Expert Lectures/Seminars/Courses Organised

- Department of Electronics and Telecommunication Engineering of K. K. Wagh Institute of Engineering Education and Research Nashik, Students' Association of Electronics Engineers (SAEE) in collaboration with IETE Nashik subcenter organized an expert talk on “Link Yourself with LinkedIn” by Mr. Vinaay Mantri (CEO, Inner Sky Consulting Pvt. Ltd.) on 15th May 2023.

- Department of Electronics and Telecommunication Engineering of K. K. Wagh Institute of Engineering Education and Research Nashik, Students' Association of Electronics Engineers (SAEE) in collaboration with IETE Nashik subcenter organized an expert talk on “Interview Skills and Body Language” by Mr. M. M. Paranjape on 15th May 2023.

Insights into the art of effective Broadcasting through industrial visit to Radio Vishwas

From understanding the technical aspects of radio transmission to experiencing the creative process of producing captivating content, this visit, which was organized foe the B.E. E&TC on 16th May, offered the students an insightful glimpse into the functioning of a radio station.

Awards received by Students

The students of T.E. E&TC have attained the remarkable achievement of securing the second position in the project competition of the Elicit 2K23 Event organized by the K. B. T. College of Engineering's Electronics and Telecommunication Engineering department on 8th May 2023.

- **Manish Patil**
- **Aniket Jagtap**
- **Sushant Shelar**
- **Deven Patil**

Industrial Training / Seminar / Workshop done by Staff

Sr. No.	Subject	Faculty Name
1.	Mini-Symposium on Best Practices in Industry - Academia Collaboration	Dr. D. M. Chandwadkar D. C. Shimpi M. P. Joshi R. V. Chothe S. V. Shelke P.P. Patil
3.	Innovation Ambassador training "Foundation Level"	P. J. Mondhe
2.	Professional development programme on “Foundations of cryptography”	R. V. Chothe
4.	Business Solution Polyclinic Program	P. J. Mondhe

Industrial Training / Seminar / Workshop done by Staff

Mini-Symposium on
Best Practices in
Industry - Academia Collaboration

Certificate of Attendance

This is to certify that

D M Chandwadkar

from

K K Wagh Institute of Engineering Education and Research, Nashik

has attended the Online Mini Symposium on "Best Practices in Industry - Academia Collaboration"

organized by IUCEE in association with the Association of the Managements of Un-aided Engineering Colleges (Mah.) on

26th and 27th May 2023

Mr.Jayant Sathe, IUCEE Foundation Director | Prof. Dr. K. N. Nandurkar, Director, KKWIEER, Nashik | Dr. Ravi Salagame, IUCEE Foundation Director

Mini-Symposium on
Best Practices in
Industry - Academia Collaboration

Certificate of Attendance

This is to certify that

Puja Patil

from

K.K.Wagh Institute of Engineering Education & Research , Nashik

has attended the Online Mini Symposium on "Best Practices in Industry - Academia Collaboration"

organized by IUCEE in association with the Association of the Managements of Un-aided Engineering Colleges (Mah.) on

26th and 27th May 2023

Mr.Jayant Sathe, IUCEE Foundation Director | Prof. Dr. K. N. Nandurkar, Director, KKWIEER, Nashik | Dr. Ravi Salagame, IUCEE Foundation Director

Certificate No. 2023-24-PDPOM-29/7458

National Institute of
Technical Teachers Training and Research, Chennai

(Ministry of Education, Government of India)

Certificate of Participation

This is to certify that

RUPALIBEN VILAS CHOTHE — 2312112469

Research Scholar in Electronics and Telecommunication
K. K. Wagh Institute of Engineering Education & Research
Nashik , Maharashtra

Participated in the Professional Development Programme on

' Foundations of Cryptography '

conducted by this Institute from 15/05/2023 to 19/05/2023 (Notional Learning Hrs: 20)

through Online Mode

duly sponsored by the ~~organisation~~ / self

19/05/2023

Course Coordinator | Director

Ministry of Education, Government of India | MoE's INNOVATION CELL (GOVERNMENT OF INDIA) | INSTITUTION'S INNOVATION COUNCIL | AICTE

This is to certify that

Parag Mondhe

of

K.K. WAGH Institute of Engineering and Research, Maharashtra

has undergone Innovation Ambassador (IA) training 'Foundation Level' (Total 15 Sessions of 30 contact hours) conducted in online mode by MoE's innovation Cell & AICTE during the IIC calendar year 2022-23.

Dr. Abhay Jere, Chief Innovation Officer, MoE's Innovation Cell | Mr. Dipan Sahu, Assistant Innovation Director, MoE's Innovation Cell

Date of Issue: 02-06-2023 | **E-certificate No:** IA/Foundation/1026083

IIC ID: IC201810542

COMPLETION
CERTIFICATE

MACCIA 100 — MAHARASHTRA CHAMBER OF COMMERCE, INDUSTRY & AGRICULTURE

This certificate is presented to **Parag Mondhe** faculty of K. K. Wagh Institute of Engineering Education & Research for successfully completing the 18 hours of **Business Solution Polyclinic Program** faculty development program from 29/08/2022 to 29/09/2022 to inculcate the concept of innovation, intellectual property rights & process of establishing connection with industry.

UID : IPS210010000288

SIGNED DIGITALLY
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- **Samyak Shingi**

VISION

Excel in quality technical education and research for sustainable solution development for industry

MISSION

M1: To provide quality education for the preparation of technically and professionally competent.

M2: To create an environment to enhance life-long learning and 21st century skills.

M3: To inspire students' innovative thinking and creativity to promote research culture.