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- REGISTER TODAY!
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**FEATURED STORY**



# 'KINK STATE' CONTROL MAY

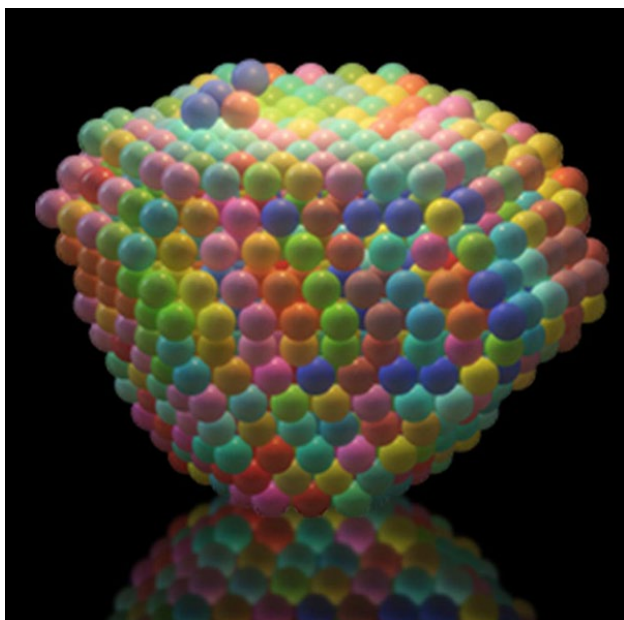
provide pathway to quantum electronics



**LEAD: PROFESSOR JUN ZHU**

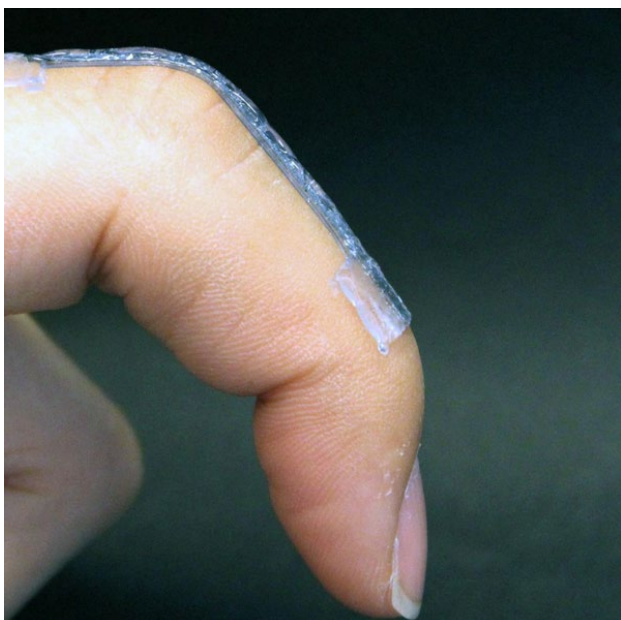
A team of researchers led by Penn State fabricated a switch to turn on and off the presence of kink states, which are electrical conduction pathways at the edge of semiconducting materials. By controlling the formation of the kink states, researchers can regulate the flow of electrons in a quantum system.

[READ THE ARTICLE](#)



Atoms in advanced alloys find preferred neighbors when solidifying

**LEAD: ASST. PROF. YANG YANG**



Self-assembling, highly conductive sensors could improve wearable devices

**LEAD: ASST. PROF. TAO ZHOU**

High- and medium-entropy alloys contain at least three principal elements with equal atomic compositions. The transformation mechanism from molten liquid metal to a high- and medium-entropy alloy solid is unclear. In a recent study published in **Nature Communications**, a team of researchers' findings may clarify this process.

[Read More](#)



## Grant to help Penn State build semiconductor workforce in Pennsylvania

### LEAD: PROF. JOSHUA ROBINSON

The **Appalachian Regional Commission** (ARC) has awarded \$600,000 to Penn State's **Silicon Carbide Innovation Alliance** (SCIA) to develop a series of educational courses, workshops, and paid academic and industrial internships focused on workforce development in Pennsylvania for the growing semiconductor industry.

[Read More](#)

To advance soft robotics, skin-integrated electronics and biomedical devices, researchers at Penn State have developed a 3D-printed material that is soft and stretchable — traits needed for matching the properties of tissues and organs — and that self-assembles.

[Read More](#)

TUESDAYS  
AFTER  
CAFÉ

30 minute talks about MCL's analytical capabilities

11 AM · Millennium Science Complex  
3rd Floor Commons

## After Café

**WHEN:** Select Tuesdays 11:00 AM - 11:45 AM, September 24 - November 19

[After Café](#) casual opportunity immediately following the [Millennium Café](#) to learn about the breadth of analytical capabilities within the Materials Characterization Laboratory (MCL). These brief (30 minute) multi-technique and interdisciplinary talks will highlight applications (not theory) to provide useful insights to novice and experienced researchers working across various science and engineering challenges.

[Upcoming After Café Talks](#)

## Message from the Director

### How attending Materials Day will benefit you

MRI's marquee annual event, Materials Day, is a celebration of our core mission, which is to **drive interdisciplinary research across the domain of materials**, guided by strategic planning based on predicted national needs and grand challenges. We support Penn State faculty members through our core facilities and by acting as a network for faculty to find expertise across the entire Penn State system. **MRI also enables faculty to develop interdisciplinary centers, large research programs, and opportunities for collaborations with industry.** We also provide seed grants for generating preliminary data for future federal proposals aligned with national initiatives.

We welcome faculty to learn about these activities and all of the opportunities MRI offers Penn State faculty by joining us at the 2024 Materials Day, themed **"Convergence of Materials, Data, Manufacturing, and the Human Dimension"** on October 29 and 30. We particularly welcome new faculty to participate and discover opportunities offered via seed grants, centers, and core facilities.

In addition, faculty, students, and staff are invited for some coffee and intellectual exchanges on Tuesdays at 10:00 a.m. at the Millennium Café ([more details here](#)).



**Clive Randall**  
*Director,  
Materials Research Institute*

## UPCOMING EVENTS

### CONVERGENCE of MATERIALS, DATA, MANUFACTURING and the HUMAN DIMENSION



October 29-30, 2024  
MaterialsDay  
2024

**October 29 - 30, 2024**

University Park, PA

### Convergence of Materials, Data, Manufacturing, and the Human Dimension

Block off Oct. 29-30 on your calendar for the 2024 Materials Day, Penn State's marquee event for the materials research community. This year's theme is **"Convergence of Materials, Data, Manufacturing, and the Human Dimension."** With this theme in mind, the event will feature **keynote speakers, breakout sessions, graduate student poster sessions, industry-sponsored tabletops, lunch, and several networking opportunities.**

[DETAILS & REGISTRATION](#)

### Live interviews from Materials Day 2023

Nicholas Smith of **Corning Incorporated** talks about the importance of keeping a pulse on what's happening at the cutting edge of materials research. Materials Day provides a network of opportunities to engage with industry, faculty researchers, students, and highly skilled technical staff.



ICDS Day: October 23, 2024  
(Institute for Computational and Data Sciences)

## Shaping The Future of Penn State's Digital Research

The event aims to bring together researchers, faculty, and industry experts to foster innovation and explore the intersection of digital technologies and research. Network and collaborate on cutting-edge methodologies, data analytics, and computational tools. Participants will be able to connect with and learn from experts on topics such as data ethics, machine learning, and interdisciplinary collaboration.

[Details & Registration](#)



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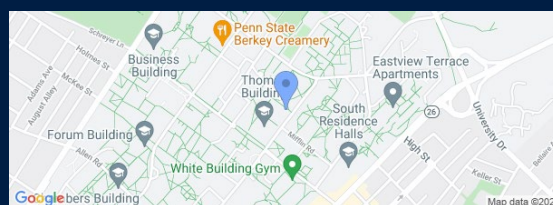


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