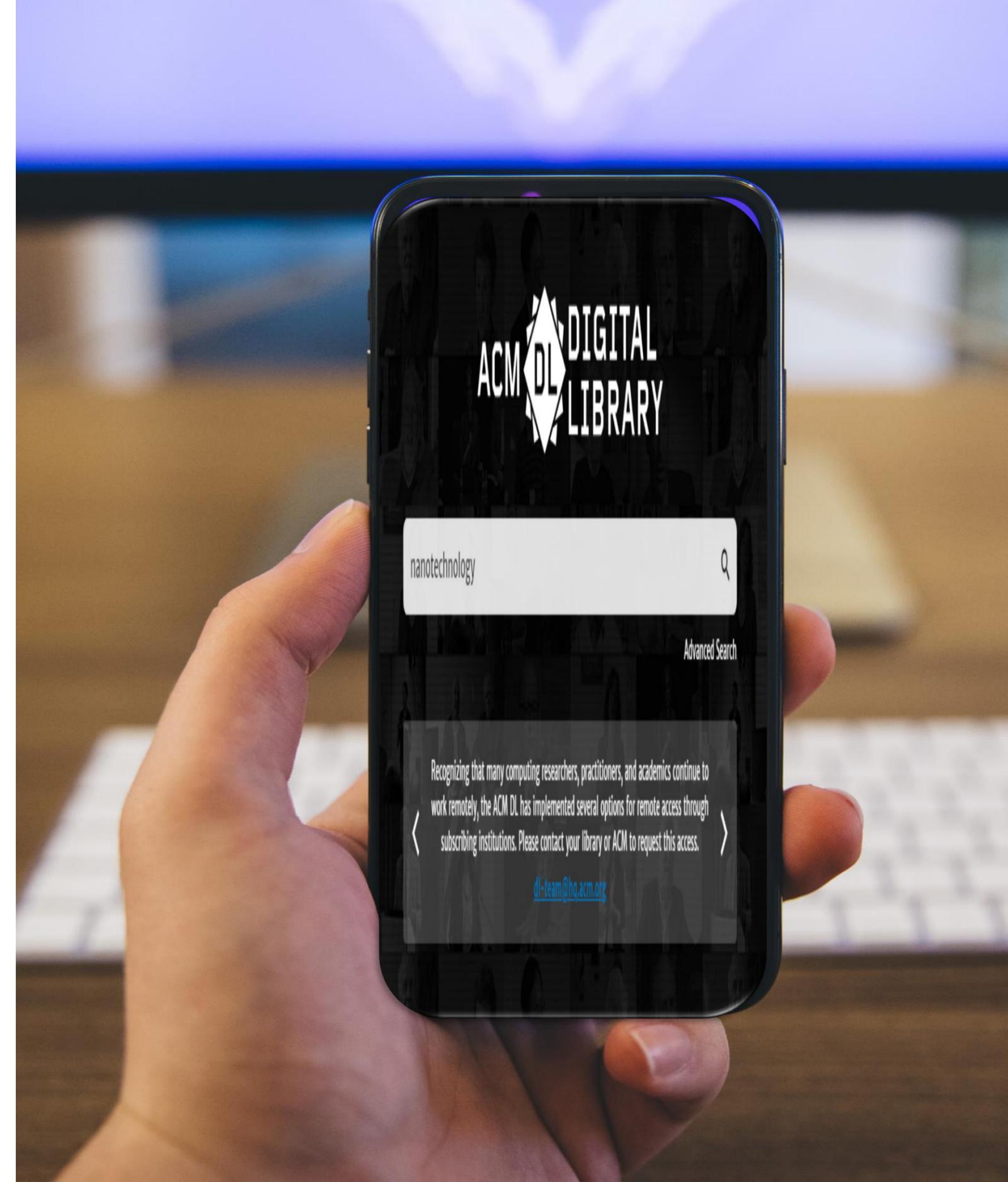




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## Guide 1

1

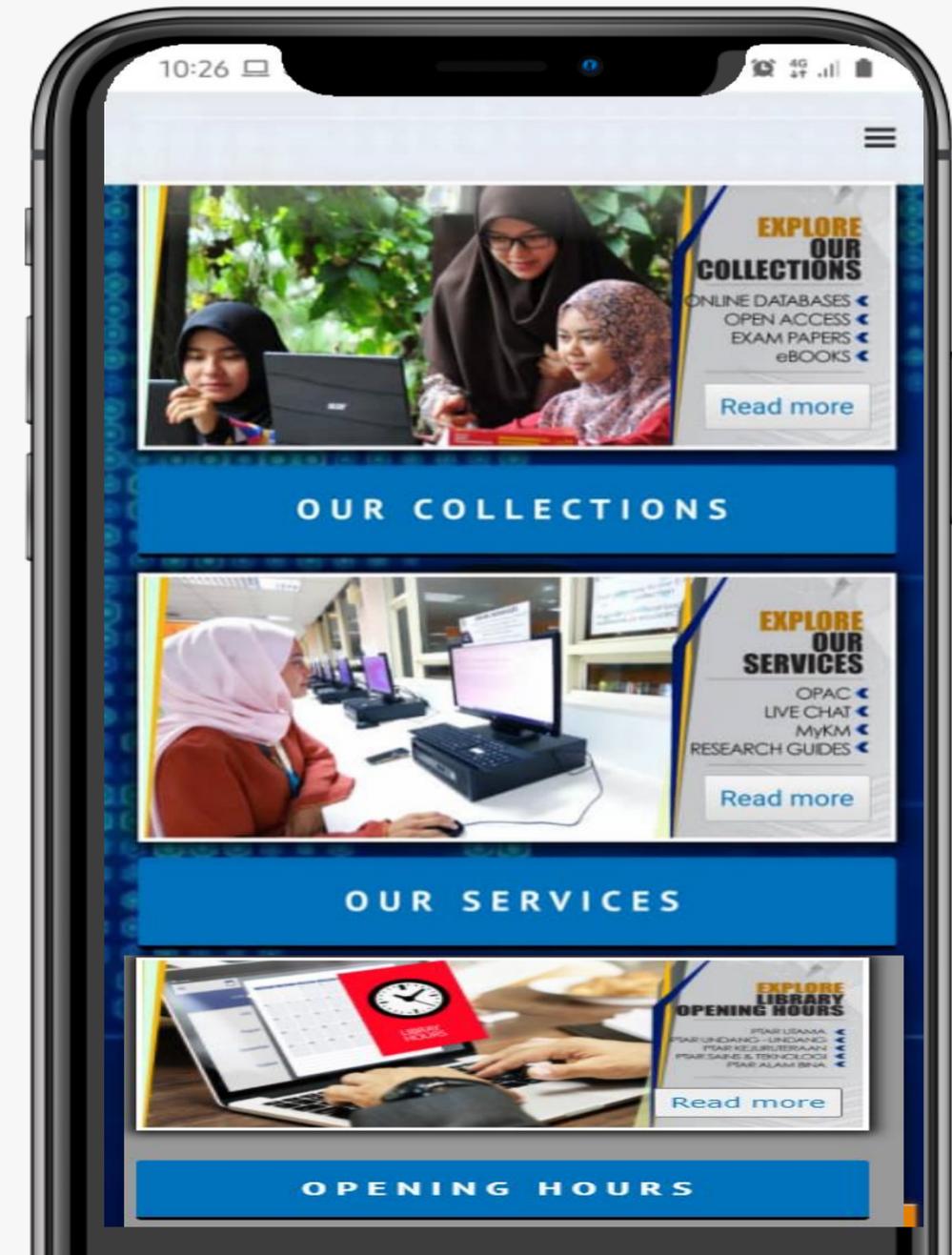
Go to <https://library.uitm.edu.my/>

2

From the library portal website there are three categories namely our collections, our services and opening hours.

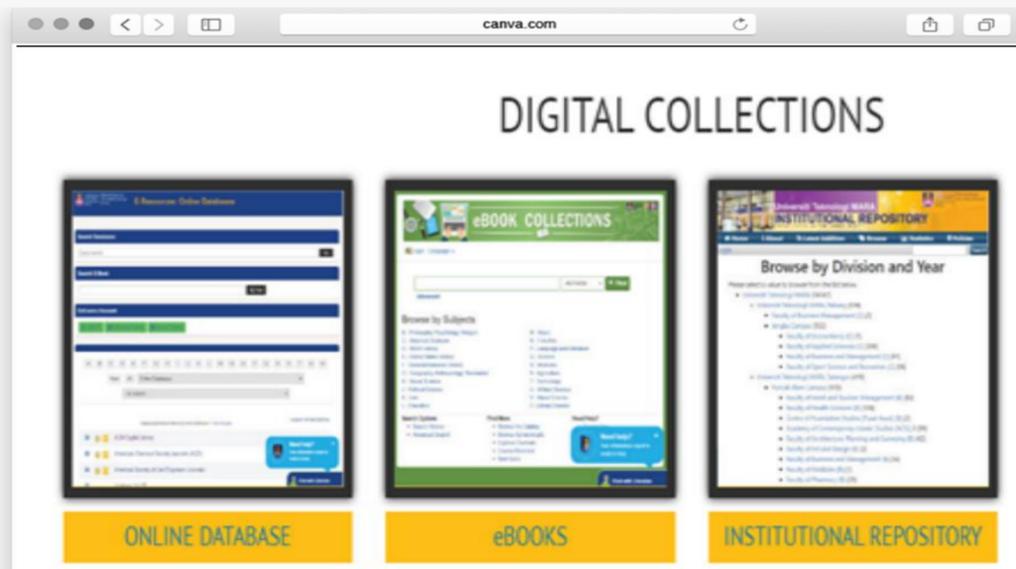
3

Click 'Our collections' to access eResources Online Database



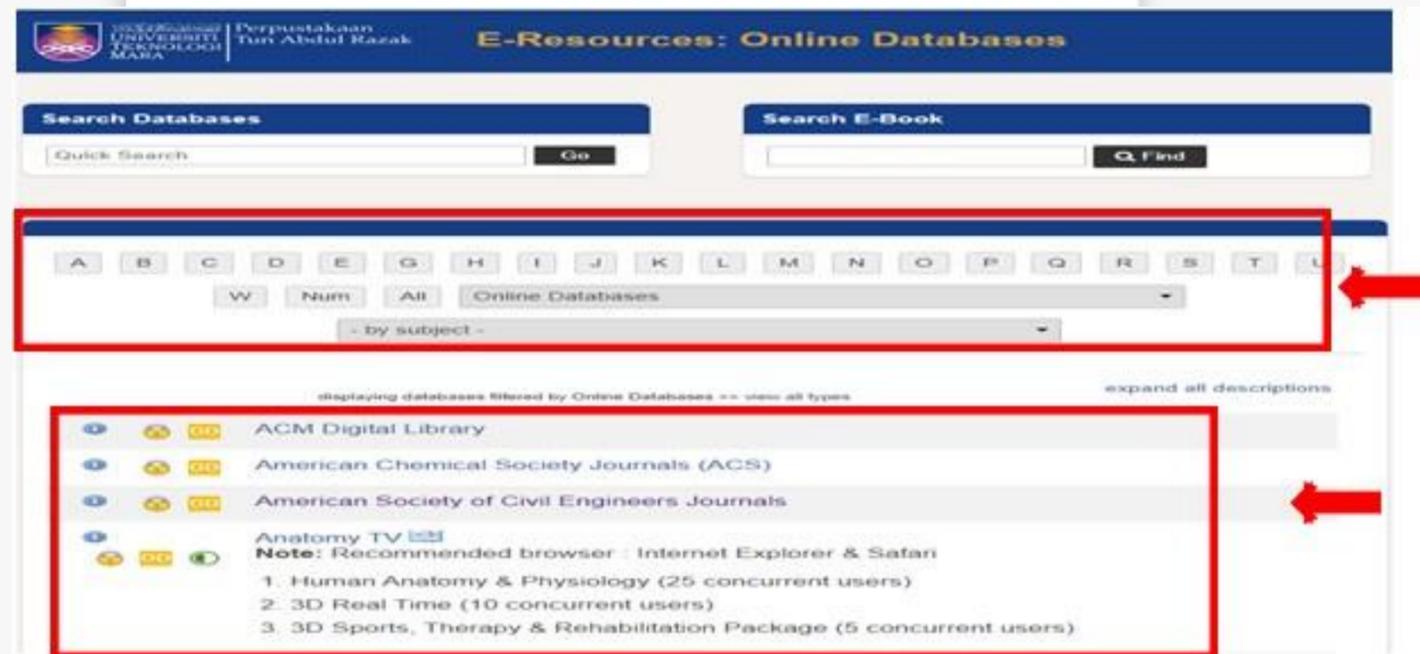
# USER MANUAL

## Guide 2



1

In the Digital Collections view, Click Online Database to access the Online Database.



2

User can access ACM Digital Library either by alphabet or by format or by subject.

3

Click ACM Digital Library

# USER MANUAL

## Guide 3

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## Guide 4

Home > ICPS Proceedings > PETRA '09 > Nanotechnology for biomedicine: past, present and future

RESEARCH-ARTICLE

### Nanotechnology for biomedicine: past, present and future

Author: [Robert W. Newcomb](#) [Authors Info & Affiliations](#)

**Publication:** PETRA '09: Proceedings of the 2nd International Conference on PErvasive Technologies Related to Assistive Environments • June 2009 • Article No.: 69 • Pages 1–4 • <https://doi-org.ezaccess.library.uitm.edu.my/10.1145/1579114.1579183>

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**ABSTRACT**

During the last few years nanotechnology has made many advances especially in the biomedical area. Some of the terminology is defined with illustrative devices under consideration discussed here with a view toward what will be coming up in the future.

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## Guide 5

### Nanotechnology for Biomedicine: Past, Present and Future

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#### ABSTRACT

During the last few years nanotechnology has made many advances especially in the biomedical area. Some of the terminology is defined with illustrative devices under consideration discussed here with a view toward what will be coming up in the future.

#### Categories and Subject Decriptors

K.4.1 Computer related health issues

#### General Terms

Design, Performance

#### Keywords

Nanotechnology, biomedical engineering

#### 1. INTRODUCTION

Nano structures are ones whose length/width/height dimensions are on the order of nanometers, a nanometer, nM, being  $10^{-9}$  meters. For those of us working with micron,  $\mu$ M, dimensions, which we thought to be small, the nM dimensions are the next step in miniaturization. Such a small length is rather hard to visualize, especially when one considers that the diameter of a human hair is on the order of 100 to 1000 nM in diameter, being made of over an hundred strands of 10 nM microfibril Keratin [1, p. 69]. To be able to construct in a controlled way such miniscule structures requires the means of ultra fine resolution and special instrumentation. At this stage little such is available but much is being developed and with the large scientific investments presently underway, such as the US Government's nanotechnology initiatives, the future looks very bright. This is especially true for the biomedical engineering field since nanoparticles can invade spaces previously unattainable, such as the wall of living cells. That being the case, the future looks bright for the cure of cancers, detection of DNA, and delivery of drugs through engineered viruses.

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 PE-TRAV09, June 09-13, 2009, Corfu, Greece.  
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#### 2. NANO DEVICES

The technology is such that new components are required and with them new terminology, some of which uses familiar words but with very specialized meaning. Among the nano structures being considered by the research community and of interest to the medical community are nanoparticles, nanoshells, nanowires, nanotubes, quantum dots, mems nanobeams and molecular probes [2, p. 48].

Nanoparticles are nanosized devices which contain therapeutic molecules for delivery of drugs. The ones being developed contain a lipid shell which allows them to penetrate blood vessels. As such they can release drugs to desired areas, such as antibodies targeted to destroy cancer cells. Similarly, one can fabricate engineered viruses which can be used for many therapeutic purposes. Figure 1 shows on the top left a 12 nM particle which is an engineered virus with the inside shown on the right with a natural virus shown on the bottom [3].

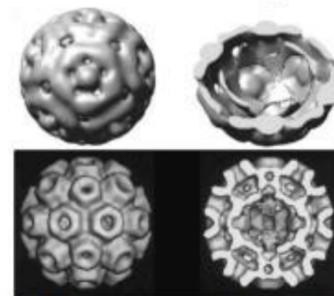


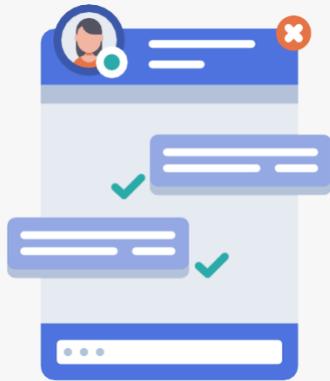
Figure 1. Engineered virus. Reprinted with permission from [3]. Copyright 2009 American Chemical Society.

Nanoshells are silica spheres with gold or other metallic coatings which can be sent through the blood stream to collect at a determined site. On being radiated they will absorb heat and serve as a very local heat source, which for example can be used to kill cancer cells.

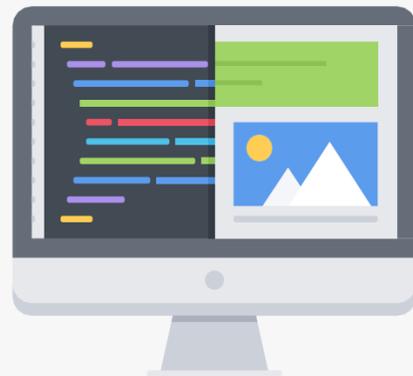
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