



Nanotechnology
Egyptian Company For Carbon Materials

“Think, Be Creative, and Produce”



قال تعالى

” وَأَنْ لَيْسَ لِلْإِنْسَانِ إِلَّا مَا سَعَى * وَأَنْ سَعْيُهُ سَوْفَ يُرَى *

ثُمَّ يُجْزَاهُ الْجَزَاءَ الْأَوْفَى * وَأَنْ إِلَىٰ رَبِّكَ الْمُنْتَهَىٰ “



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ECCM PROFILE

2022-2024

info@eccm-eg.com





ECCM



-The Egyptian Company for Carbon Materials (ECCM): is one of the newest Nano-companies in Egypt.

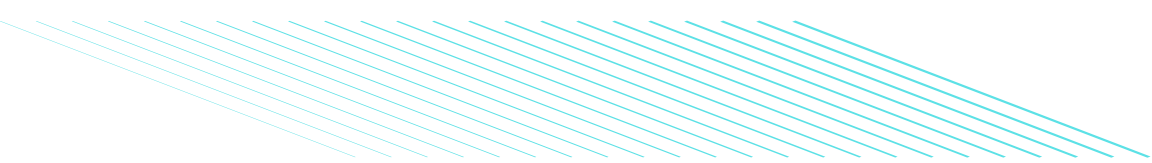
-ECCM offers the in-situ design of your nanomaterials in our laboratories and uses our facilities to produce your own nanomaterials for smart, multifunctional, and wide-scale applications in science, electronics, optoelectronics, pharmaceutical, and dental materials, agriculture, engineering...etc.





VISION

To be the leading carbon materials company in Egypt, the Arab world, and the Middle East, enabling researchers and industry professionals to design and manufacture nanomaterials on-site. We strive to advance science, foster technological innovation, and support local industries, all while promoting sustainable practices and improving people's lives.



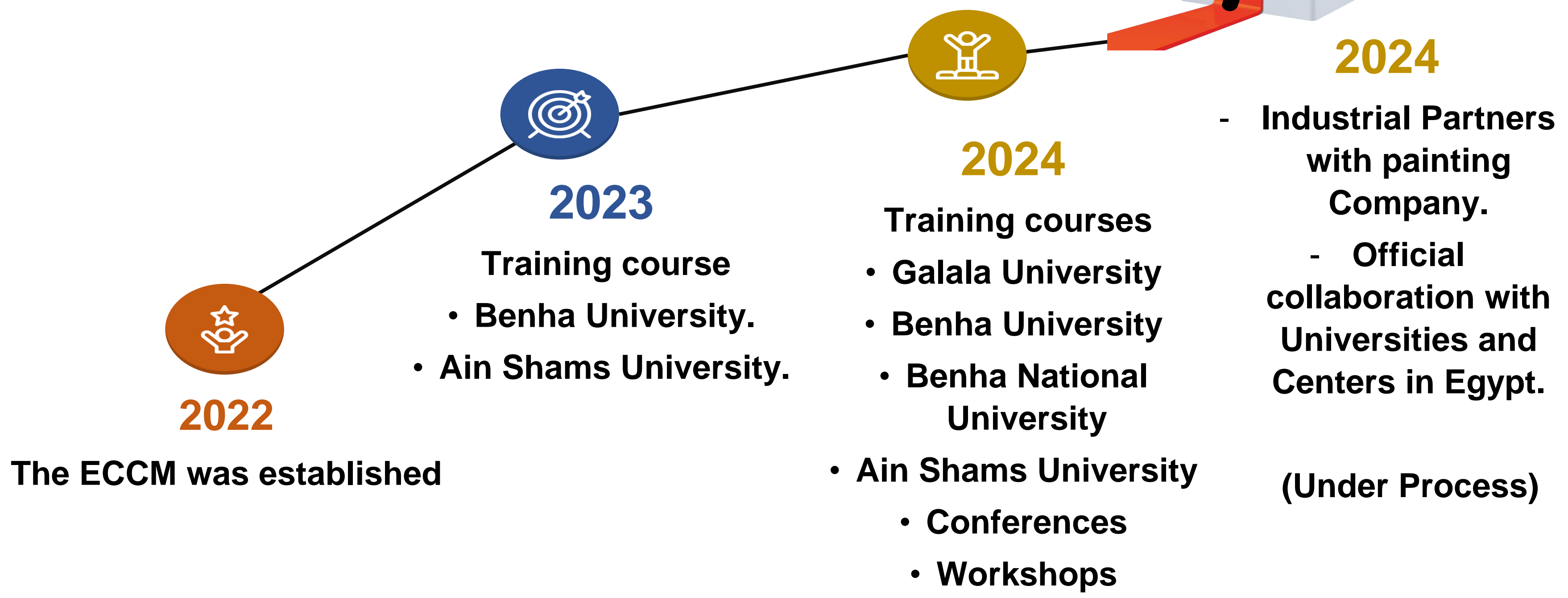


MISSION

To support scientific research and technological development in Egypt and the Middle East by producing cutting-edge nanomaterials and hybrid nanomaterials. We intend to serve several industries, including science, agriculture, health, electronics, optoelectronics, pharmaceuticals, dental materials, and engineering.



History





National and International Cooperation



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National Cooperation (Centers)



مركز بحوث و تطوير الفلزات



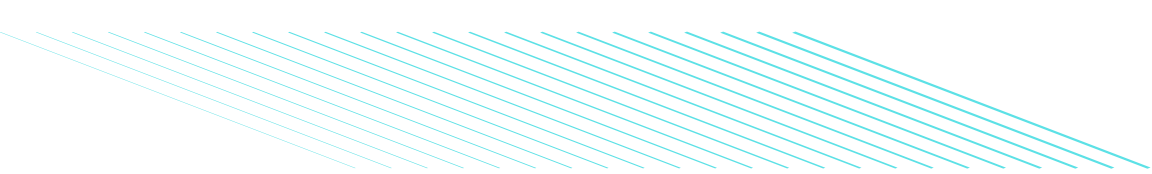


National and International Cooperation (Universities)





Main Laboratories



7 Main Laboratories

ECCM has 7 Main laboratories with sub main 20 devices, including the applications of the nanomaterials in electronic, optoelectronics, catalysis, sensors, biomedical applications



7 Main Laboratories

1 Nano-synthesis lab



2 Polymeric Nanocomposites Lab



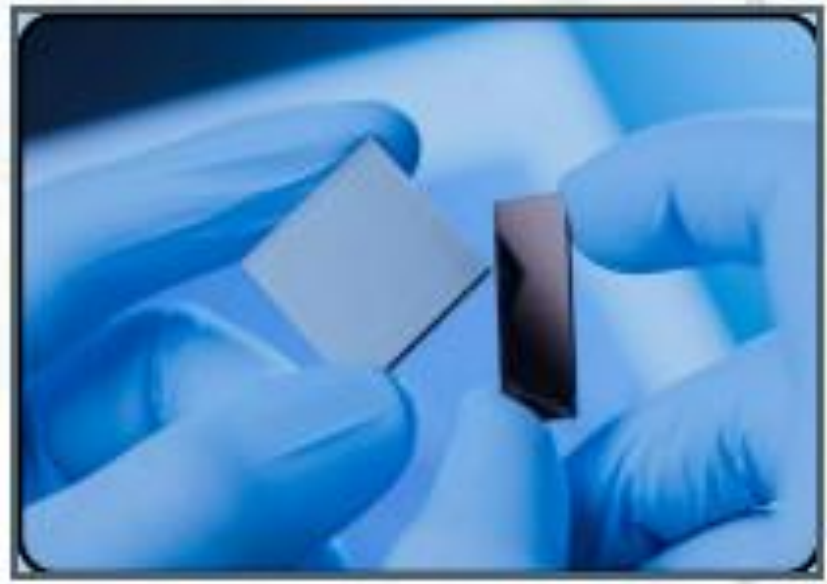
3 Coating Materials Lab



4 Energy Storage Lab



5 Thin film Lab



5 Catalysis lab



7 Glass technology Lab





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**Nano
Synthesis
Lab**

1

**Dr. Ahmed Taha
Dr. Nourhan Amir
Dr. Aya Abdel Rahman
Dr. Rehab Ibrahim
Dr. Manar Mahmoud
Dr. Ahmed Samir**

**Catalysis
Lab**

2

**Dr. Nourhan Amir
Dr. Rehab Ibrahim
Dr. Manar Mahmoud
Mrs. Omnia Mohamed
Mrs. Gannah Ibrahim**

**Polymeric
Nanocomposites
Lab**

3

**Dr. Mervat Ismail
Dr. Nehal Sabry
Dr. Rehab Ibrahim
Dr. Aya Abdel Rahman**

7 Main Laboratories



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**Glass
TEC.
Lab**

4

**Prof. DRr. Sayed Yousif
Prof. Dr. Ibrahim Yahia
Dr. Ahmed Taha
Dr. Ahmed Samir**

**Energy
storge
Lab**

5

**Prof. Dr. Islam Sheha
Dr. Aya Abdel Rahman
Dr. Nourhan Amir
Dr. Mostafa Mohamed**

**Thin Film
(Chemical
Lab)**

6

**Prof. Dr. Ahmed Abdel Galil
Dr. Nada Lotfi
Dr. Esraa Ibrahim
Dr. Manar Mahmoud
Mrs . Salma Hegazi**

7 Main Laboratories



Coating
Material
Lab

7

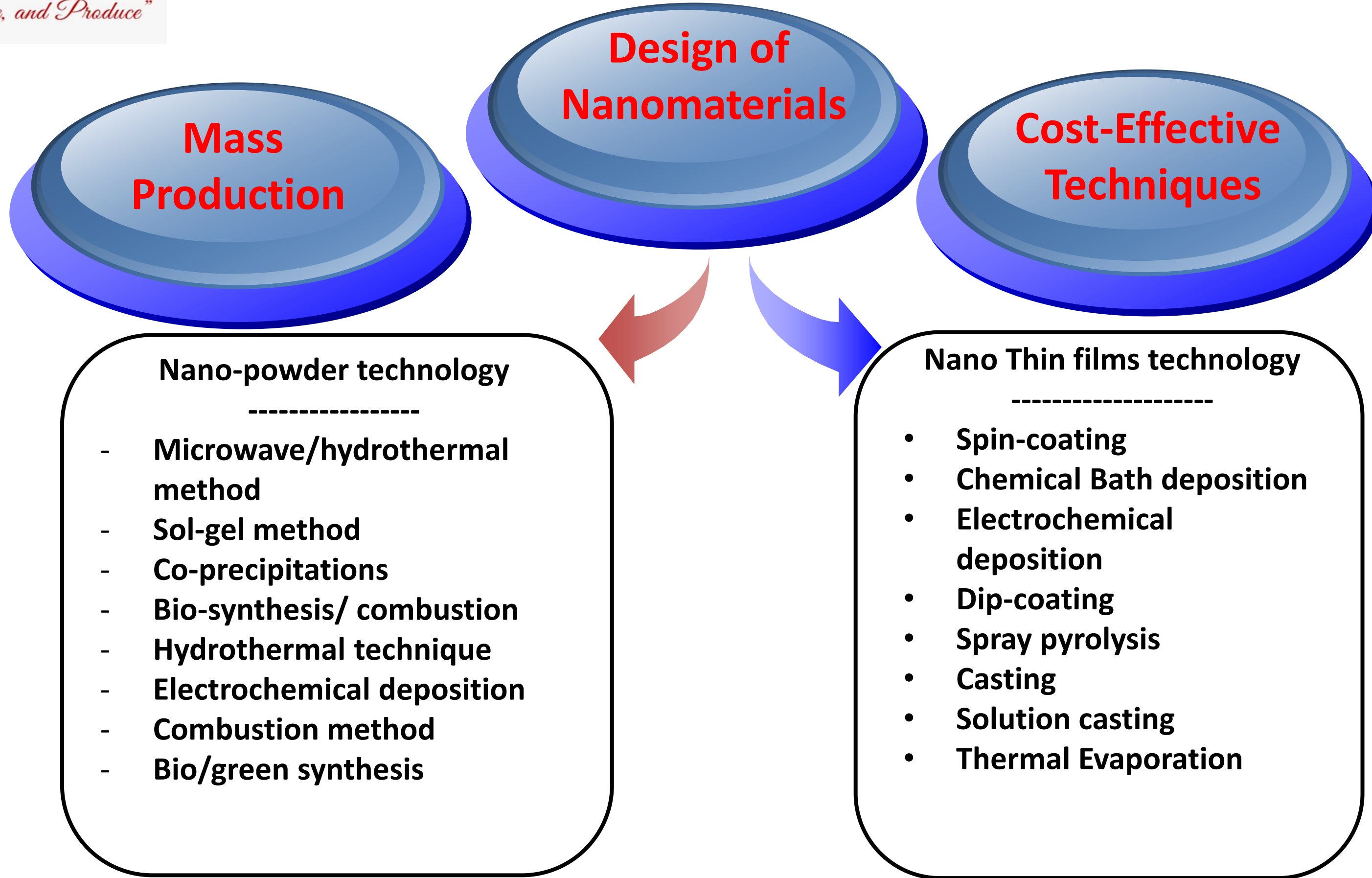
Prof. Dr. Sherif Kotb
Prof. Dr. Ibrahim Yahia
Dr. Sherif Farid

7 Main Laboratories



Available Techniques and Nano-Materials in ECCM

Available techniques in ECCM



**Mass
Production**

**Design of
Nanomaterials**

**Cost-Effective
Techniques**

Nano-powder technology

- Microwave/hydrothermal method
- Sol-gel method
- Co-precipitations
- Bio-synthesis/ combustion
- Hydrothermal technique
- Electrochemical deposition
- Combustion method
- Bio/green synthesis

Nano Thin films technology

- Spin-coating
- Chemical Bath deposition
- Electrochemical deposition
- Dip-coating
- Spray pyrolysis
- Casting
- Solution casting
- Thermal Evaporation

Measurements and Devices



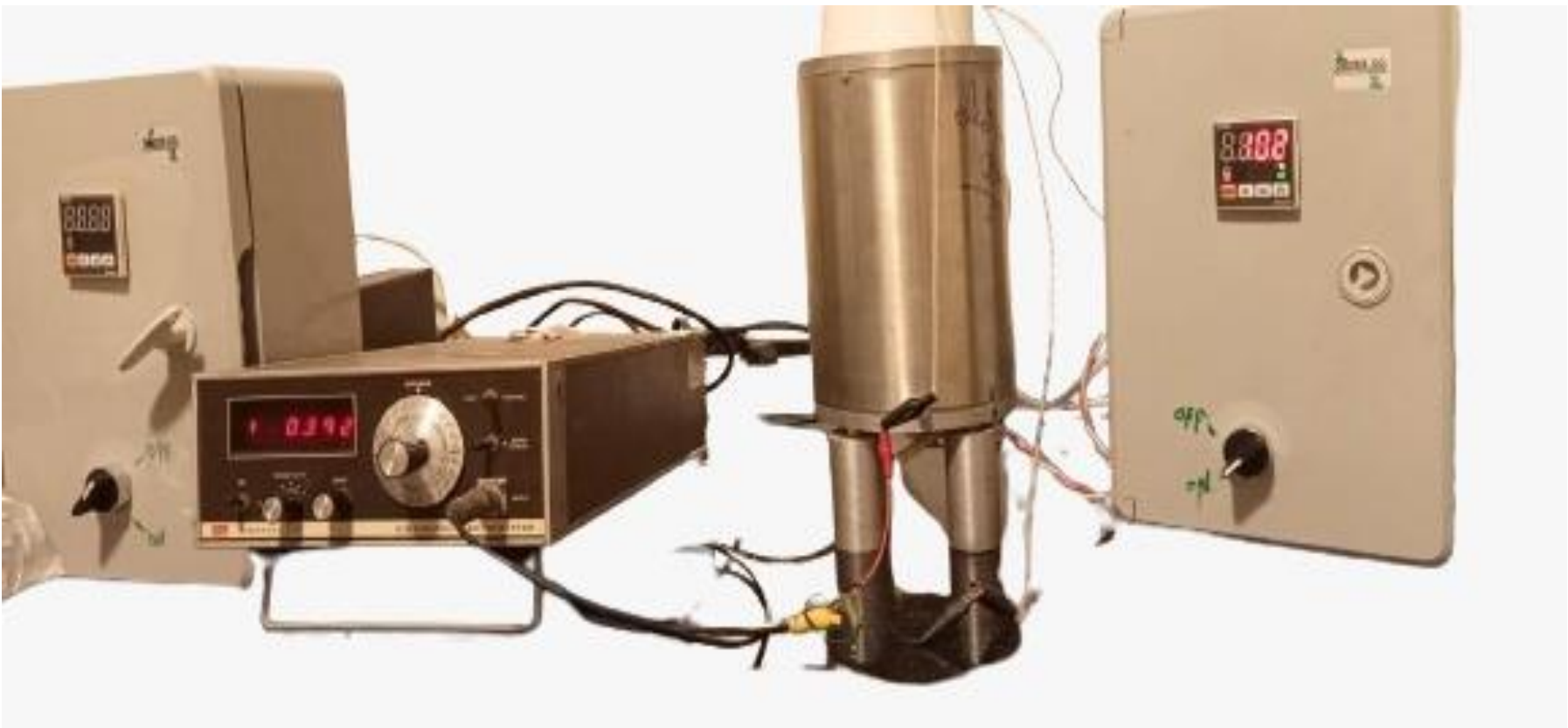


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Measurements and Devices





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Measurements and Devices





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Measurements and Devices



Coming Soon

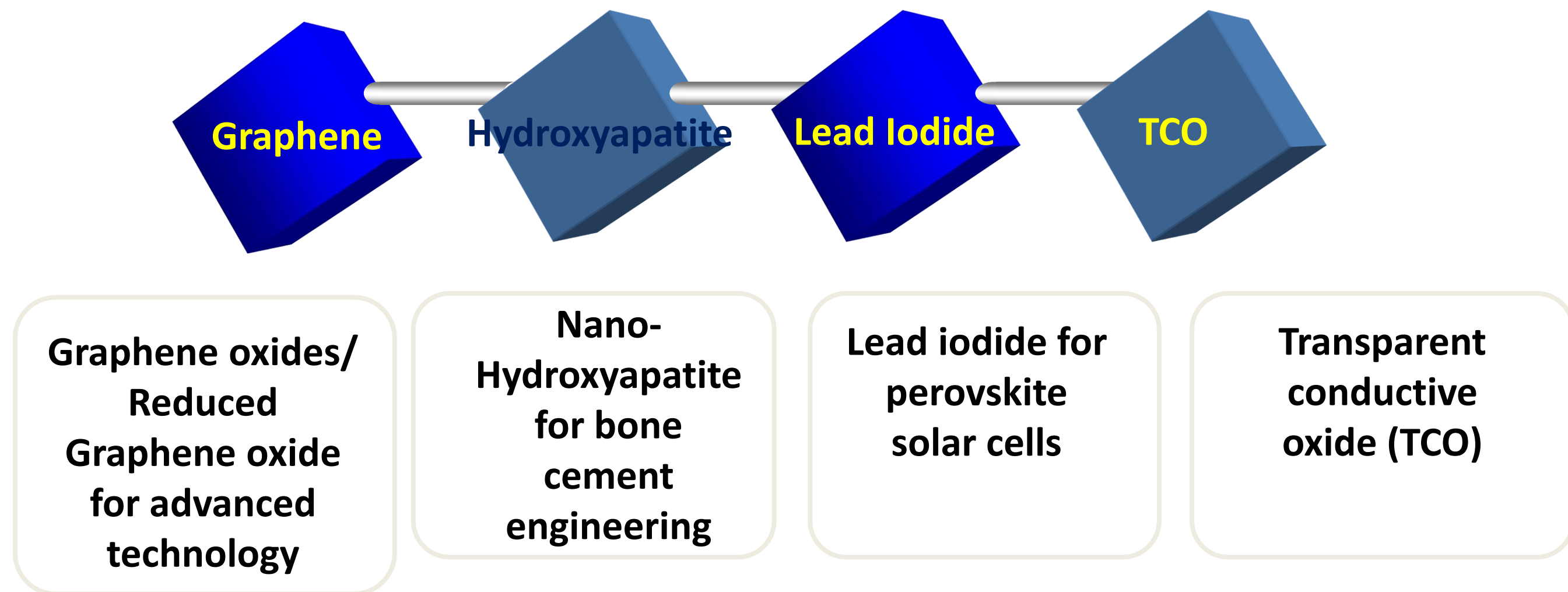
Measurements, Devices and Setup

- 1- I - V characteristics for diodes, photodiode, photovoltaic and solar cells applications with probe station system.
- 2- Thermoelectric power system.
- 3- Hall effect system.
- 4- Field Effect transistor measurements with probe station system.



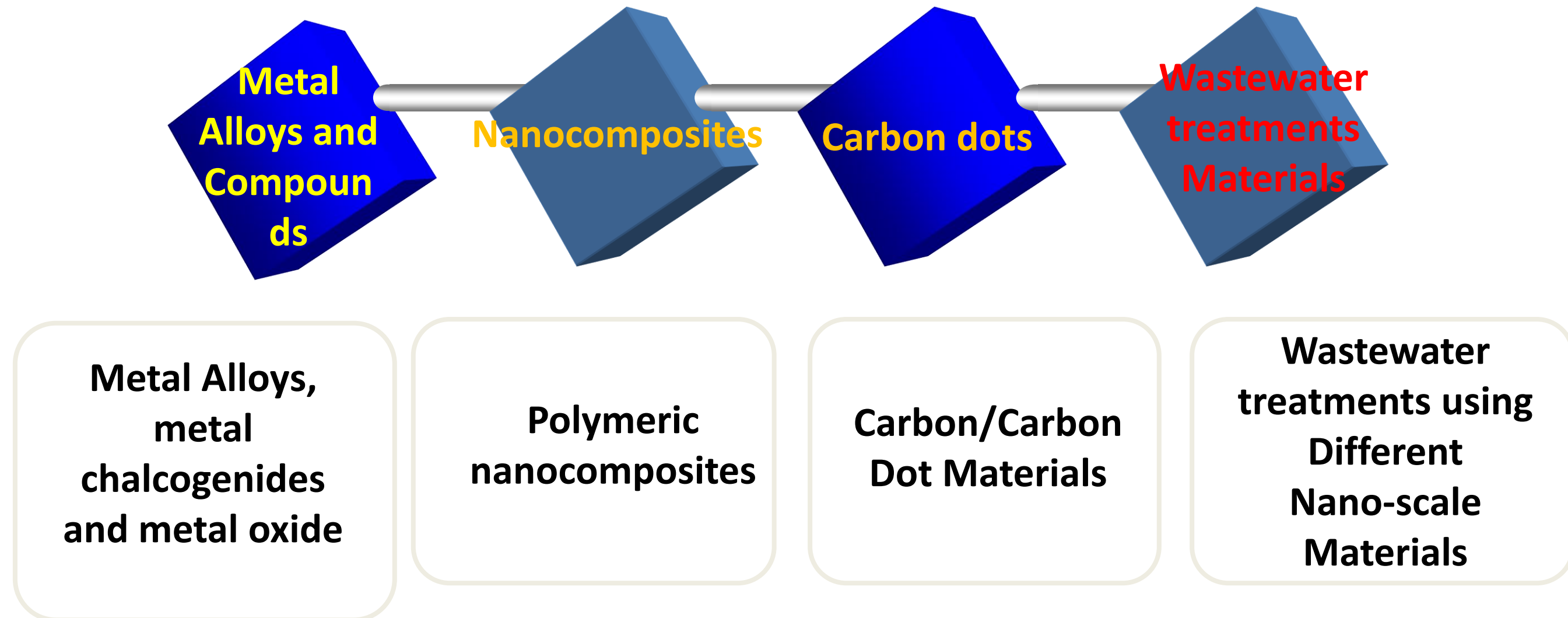
Production of Nano-Materials

Some Types of Nano-Materials in ECCM (Powders and thin films)



Design your own materials

Some Types of Nano-Materials in ECCM (Powders and thin films)



Design your own materials

Our Services



Synthesis of different classes of materials

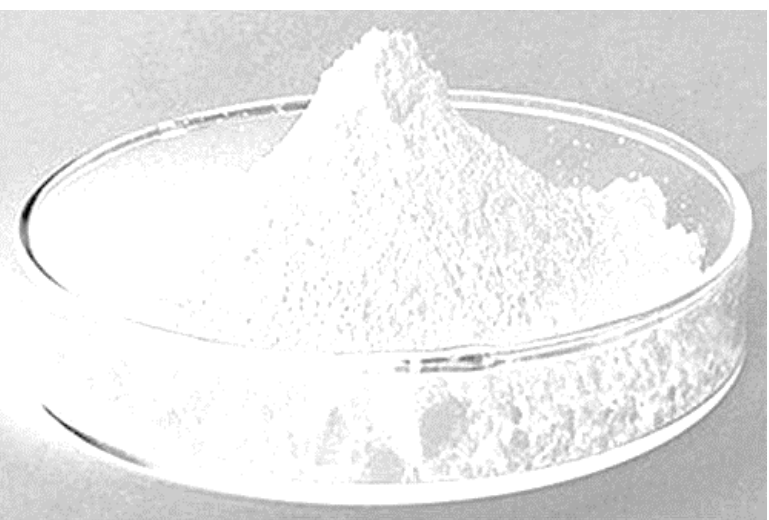
- Synthesis of Nano-biomaterials.
- Synthesis of Metallic and bi-metallic nanoparticles.
- Synthesis of Polymeric Nanocomposites.
- Deposition of different Thin film on different substrates (e.g. organic and inorganic thin films, polymeric thin films,...etc).
- Synthesis catalytic nanomaterials and nanocomposites.
- Synthesis of Metal Alloys/Metal nanocomposites

Design your own materials

Our Services



Nano-Materials in ECCM (Examples)



**Nano-Zinc Oxide with
sizer(20-50)nm**



**Nano-Copper Oxide
CuO (40 nm)**



**Nano -Iron Oxide
Powder (30nm)**



**Nano Cobalt Oxide
Nanoparticles (50-70)nm**



**Silver Nanoparticles
(50nm)**



**Nano-Hydroxyapatite
(nanorods)**



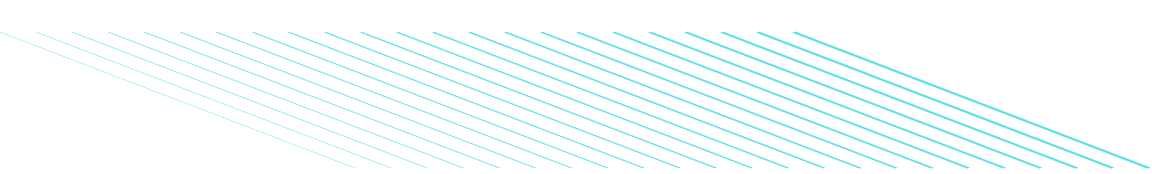
**Graphene Nano
Powder**



**Carbon Quantum Dots (6 nm,
Bright Blue Luminescen)**



Mass Production

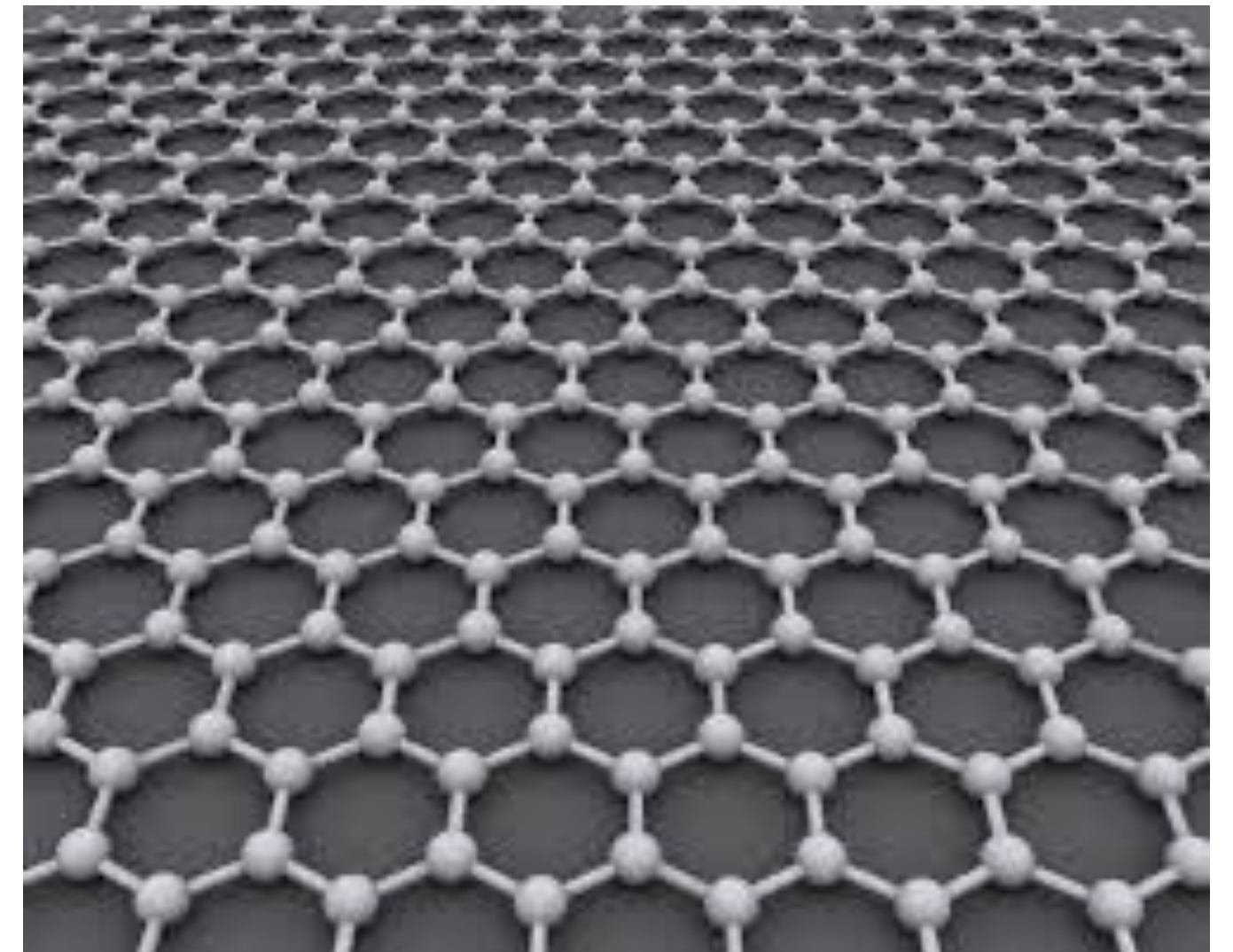


Mass Production

Our lab facilities and highly qualified staff underpin the pursuit of breakthroughs in these fields. which can be able to provide the Mass production of graphene.

Graphene nanosheets

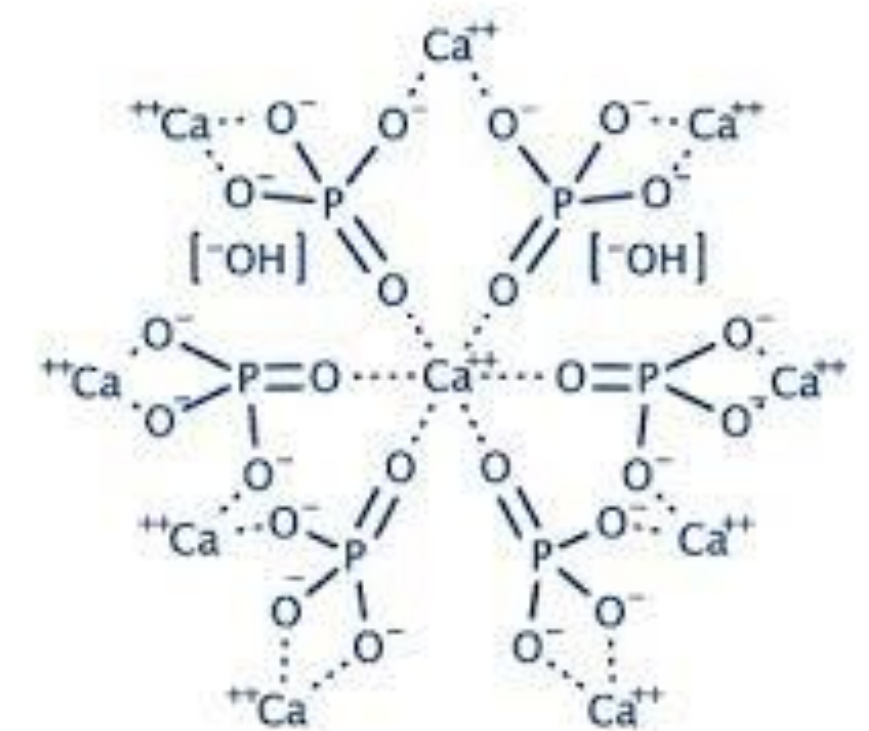
Up to 3 kilogram per month
and we can increase our
production



Mass Production

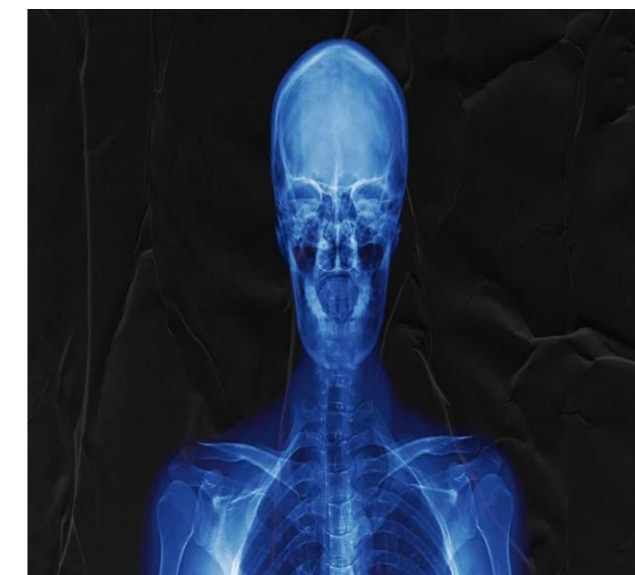


Our lab facilities and highly qualified staff facilitate the production of hydroxyapatite/nano- hydroxyapatite as it is the n-Hydroxyapatite (nHA) is an inorganic mineral present in human bone and teeth. It plays a role in the structural strength of bone and in bone regeneration. While it occurs naturally in bone, healthcare professionals often use synthetic and natural HA when carrying out bone repair treatments



Nano-hydroxyapatite nanoparticles

Up to 2 kilogram per month and we can increase our production



Mass Production



- Fire-retardant materials are designed to burn slowly.
- Fire-resistant materials are designed to resist burning and withstand heat. An example of a fire-resistant material is one which is used in bunker gear worn by firefighters to protect them from the flames of a burning building.



Fire-retardant Materials for Painting in Aqueous Media for paper, Cardboard boxes, wood and walls

Industrial Scales





Cooperation Protocol



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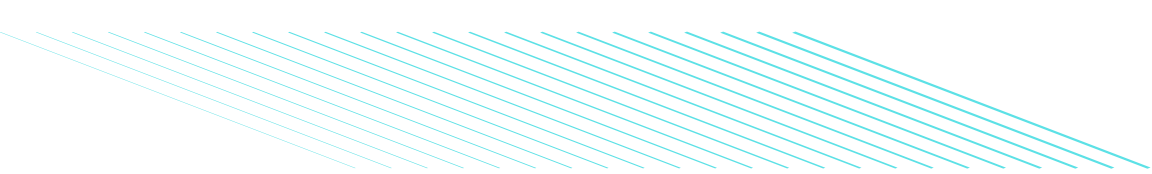
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Desert Research Center





Training Courses





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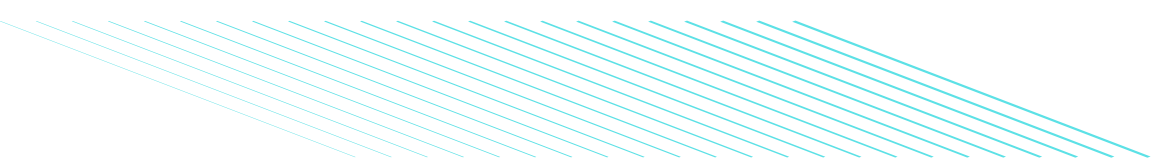
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Galala University, (2024)



Benah University





Ain Shams University





Summarizing of ECCM Products



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GET IN TOUCH

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www.eccm-eg.com



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El-Nozha, Cairo, Egypt.

SOCIAL MEDIA:



About Us

ECCM is a pioneering company in Egypt and the Middle East, specializing in the synthesis and characterization of nanomaterials. Our state-of-the-art laboratories and cutting-edge production facilities enable us to offer in-situ design services for tailored nanomaterials.

To Customer

At ECCM, we specialize in nanotechnology synthesis and characterization, offering tailored solutions for various industries. Our expertise ensures the production of high-quality nanomaterials to enhance your product performance. Partner with us to harness the power of nanotechnology and propel your business to new heights.

Our Priority is Quality

We strive to provide the highest quality of our products. Our company will be stronger and more advanced with your collaboration.

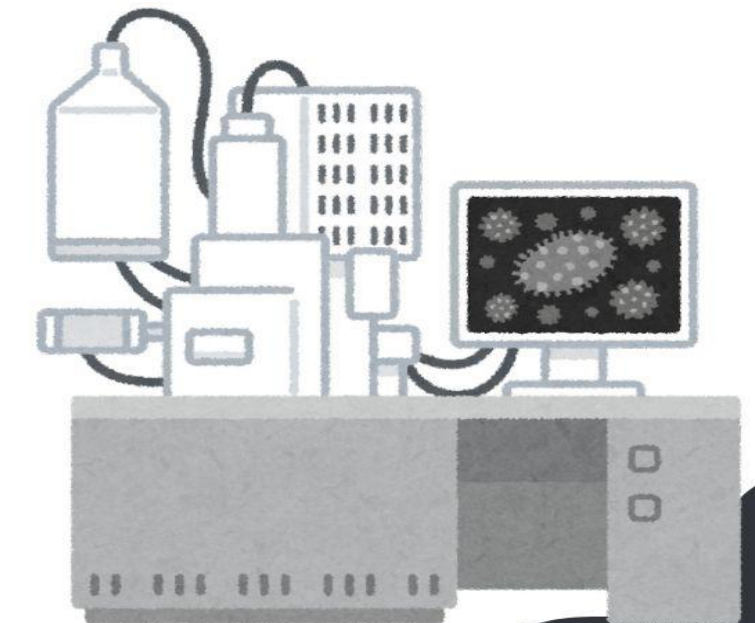
WELCOME TO



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Nanomaterials Products

1. Industrial Products

- **Highly pure Graphene Nanosheets up to 3-5 kg per month.**



- **Anti Fire and fire retardant materials for cotton, fabrics, wood, plastics, and steel.**



2. Research Products



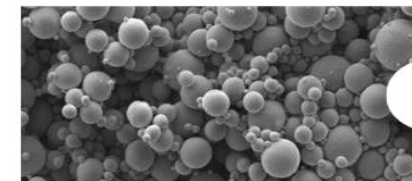
1 Carbon-Based Materials

- Graphene (G) and Graphene Oxide (GO)
- Reduced Graphene Oxides (rGO)
- Carbon Nanotubes (CNT)
- Carbon Quantum Dots (CQD)
- Active and Porous Carbon,..... etc.



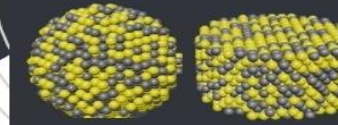
2 Nano-Magnetic Materials

- Nano-Magnetite
- Soft and Hard Ferrites
- Graphene-Based Ferrites
- Nano-Magnetic Core-Shell, etc.



3 Metallic and Metal Oxide Nanoparticles

- Crystalline Metal Oxide
- Pure and Doped Nano-Metal Oxides
- Core-Shell Metal Oxides
- Meso-Porous Metal Oxides
- Graphene-Based Nano-Metal Oxides
- Metallic and Bi-metallic Nanoparticles, (Ag, Cu, Ni, Se, Fe, Au, NiFe),etc.



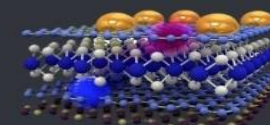
4 Metal Alloys

- Solder Metal Alloys
- Binary Metal Alloys
- Multicomponent Metal Alloys
- Metal Alloys Doped with Nanomaterials,.....etc.



5 Nano-Biomaterials

- Pure Nano-Hydroxyapatite
- Doped Nano-Hydroxyapatite (Doped nHA)
- Calcium Phosphate, α -Tricalcium Phosphate, and Tetracalcium Phosphate)
- Silver/Strontium/Magnesium doped Nano-Hydroxyapatite (nHA),.....etc.



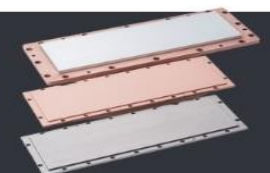
6 Nanocomposites

- Polymeric Nano-Composites
- Photocatalytic nanomaterials
- Metal Alloys/Nanocomposites,.....etc.



7 Glass Materials

- Borate, Phosphate and Silicate Based-Glass
- Tellurite Glasses
- Graphene-Based Glass
- Multicomponent Glasses,.....etc



8 Thin Film Materials

- Ag, Al, Cu, Au, Metal Thin Films.
- Metal Oxide Thin Films.
- Polymeric Nanocomposites Thin Films
- Organic/Inorganic Thin films
- Available Glass, FTO, ITO, ITO/PET PVC, Poly-Acetate Substrates),.....etc.





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Our Characterization Services

1 Surface Morphology Characterizations

- TEM
- HR-TEM
- SEM
- FE-SEM
- EDX
- Mapping

2 Structure Characterizations

- XRD
- XRF
- XPS
- NMR

3 Optical Spectroscopy

- UV-Vis-NIR
- FT-IR
- DRS
- PL
- Raman

4 Thermal Analysis

- TGA
- DSC
- DTA

5 Other Characterizations

- Zeta Potential & DLS
- BET
- HPLC
- GC-MS
- ICP-MS

Our Measurement Services

1 DC/AC Electrical Measurements

2 Magnetic Measurements

3 Radiation Shielding Measurements

4 Electrochemical Measurements & Electrochemical Corrosion



5 Battery and Supercapacitor Measurements

6 Battery Tester Measurements

7 Optical Limiting Measurements

8 Photo/Electro catalysis

9 Gas Sensor Setup

10 Humidity Sensor Setup

11 Photodetector Setup

12 Viscosity Measurements

13 Turbidity Analysis

14 Conductivity and TDS





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About Us

Lab Services

- **Comprehensive Maintenance**
- **Genuine Parts Supply**
- **Cost-Effective Solutions**
- **Tailored Service**

Stainless Steel Vacuum Glove Box designed by ECCM



Made in Egypt

The stainless steel vacuum glove box is a laboratory equipment can handle down to Hg (0.1 Bar) which can be filled with high purity inert gas into the box to filter out the active substances circularly.

ECCM: Design The Future of Nanotechnology and Nanomaterials

Contact Us

For Comprehensive Maintenance & Services

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- ☎ +20-1002710301
- 🌐 www.eccm-eg.com



For comprehensive maintenance solutions, contact us right now. We have the expertise to keep your lab operating efficiently.

Prof. Dr. Ibrahim Y. Zahran
Founder and CEO

**Lab
Maintenance Experts**

WELCOME TO



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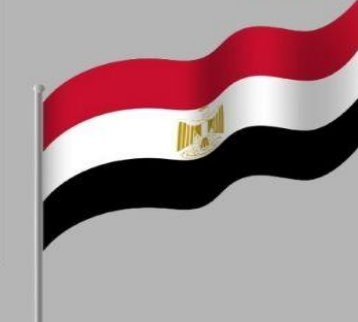
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Lab

Maintenance & Services

About 90 % of our parts, accessories, and nanomaterials are designed in ECCM laboratories and workshops.

Made in Egypt





Nanotechnology

Egyptian Company For Carbon Materials

“Think, Be Creative, and Produce”

ECCM: Design The Future of Nanotechnology and Nanomaterials

Available Lab Parts, Accessories & Equipments

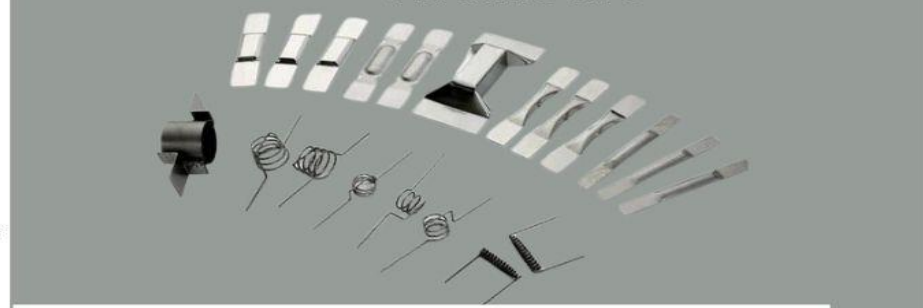
1 Battery and Supercapacitors: Accessories, Parts & Chemicals



2 Pump oil & Fittings For Vacuum Systems.



3 Thermal Evaporation Boats & Filaments



4 Interdigitated Electrodes

Both 50 um and 100 um Interdigital electrodes can be designed for humidity Sensors, gas sensors, photodetectors, Schottky diodes, solar cells, and transistors.



We can deposit Al, Cu, Ag, Au, In, and Sb onto Soda lime glass, PVC sheets, polyacetate sheets, ITO glass, FTO glass, ITO/PET, p-Si, n-Si, ceramics...etc.

5 FTO glass, ITO glass & ITO/PET substrates



6 Design of microwave oven for synthesis of nanomaterials



7 Hydrothermal Autoclave Reactor from RT up to 800 °C



8 UV-Vis photoreactor for photocatalysis applications using (UVA, UVC, and visible lamps)



9 Laboratory Stand Set



10 Optical Bench





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THANK YOU

نساعد بخدماتكم



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