



# Professor Diana Berman

Department of Materials Science and Engineering

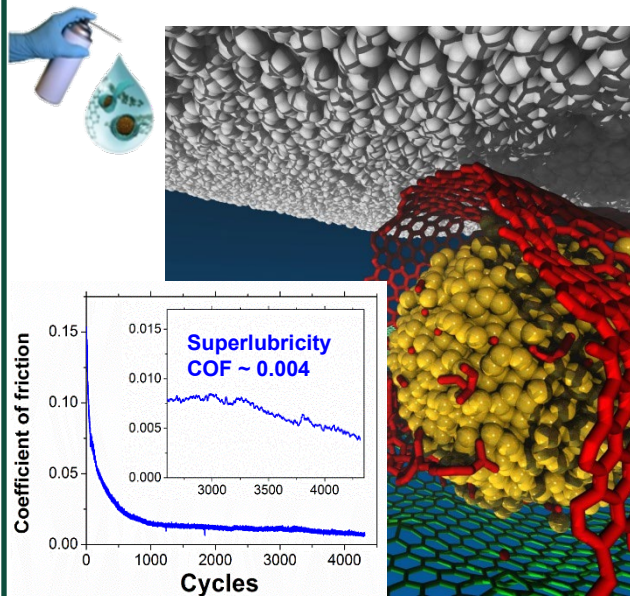
Associate Professor

**Degradation of Materials and Tribology:** Friction, Wear, Corrosion, Coatings, Sensing

[Diana.Berman@unt.edu](mailto:Diana.Berman@unt.edu)



## Superlubricity Solution



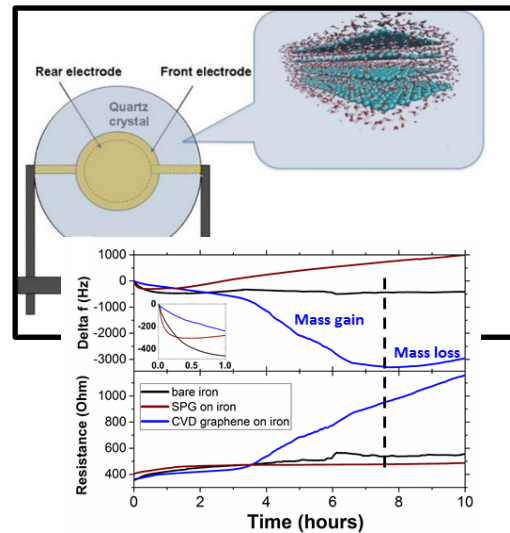
### Properties:

- Simple spray-coating deposition
- Eliminates friction and wear
- Reduces hazardous waste

### Applications:

- MEMS Devices
- Hard Disc Drives
- Seals and connectors

## Interactions at solid/liquid interface



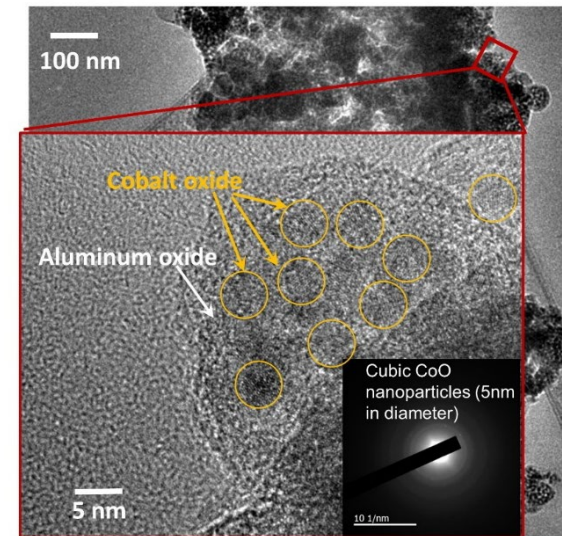
### Properties:

- Hydrophobicity/hydrophilicity
- Activation energy
- Friction and energy dissipation
- Infiltration of liquids in materials

### Applications:

- Corrosion sensing
- Oil Lubricants
- Humidity analysis

## Nanostructured Materials



### Properties:

- Large library of materials:  $Al_2O_3$ ,  $ZnO_2$ ,  $TiO_2$ ,  $Fe_2O_3$ ,  $Fe_3O_4$ , PdO, CoO, etc.
- High surface area
- Selective functionality
- Multicomponent adaptability

### Applications:

- Gas and humidity sensors
- Stress sensors
- Oil degradation sensing
- Magnetic sensors

