

Vision

Biomimetic principles cell-cell interaction & design of biomaterials

9 determinants

Understand individually

Understand interplay & relative importance

Water elasticity

Water structure

Nanostructure

Microstructure

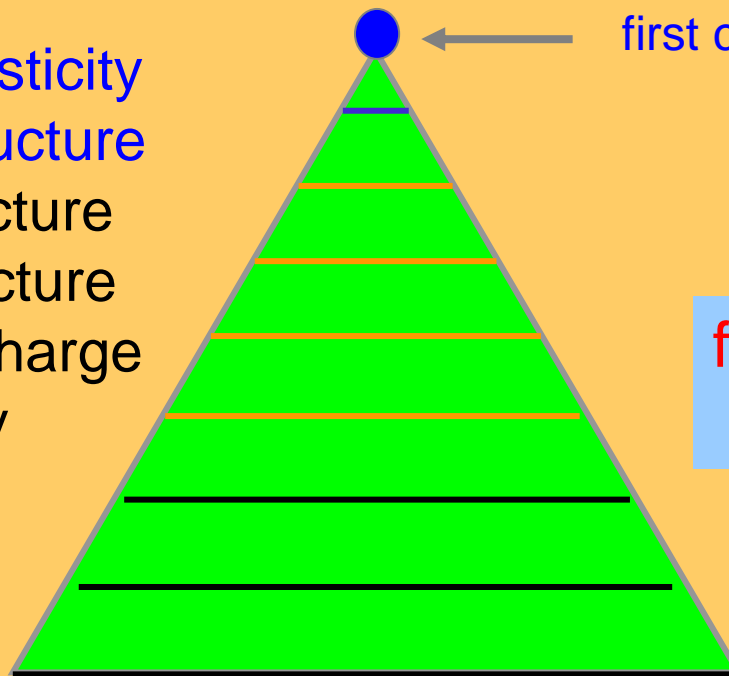
Surface charge

Chemistry

Elasticity

Hardness

Durability



first contact mediator: IWL

first contact = recognition
apoptosis or survival

Methods to image IWLs in air & subaquatically

NSOM, AFM, AFAM,
Extended Drop Evaporation,
Surface Conductivity H-Diamond ...

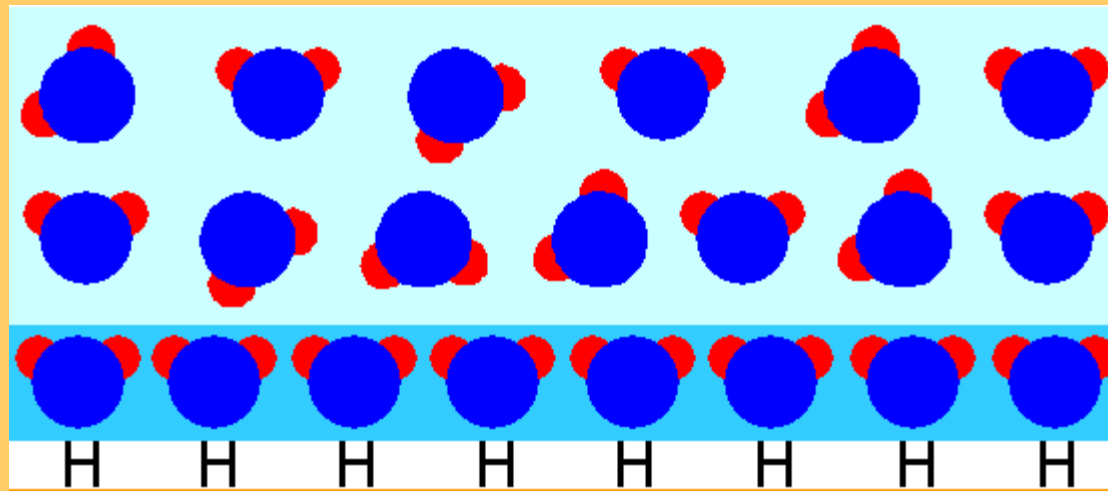


Diamond: insulator
H-terminated diamond: electrically conductive
More on this: next talk

Results (→ Posters)

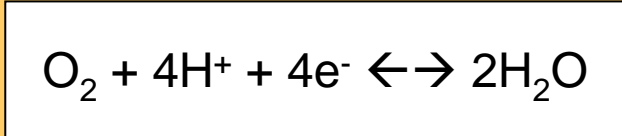
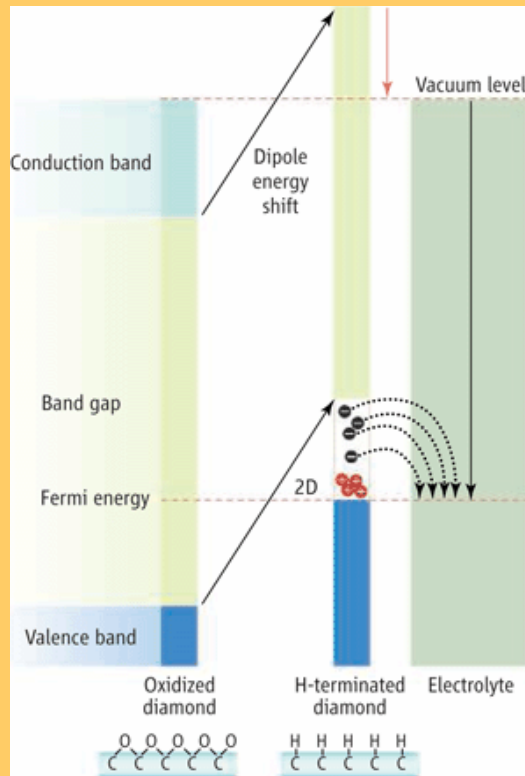
IWLs differ in order from bulk water
IWLs can be modulated by visible light
Central Result: IWLs persist subaquatically

Conclusions



H-Terminated Diamond

IWLs in air ... H-terminated Diamond

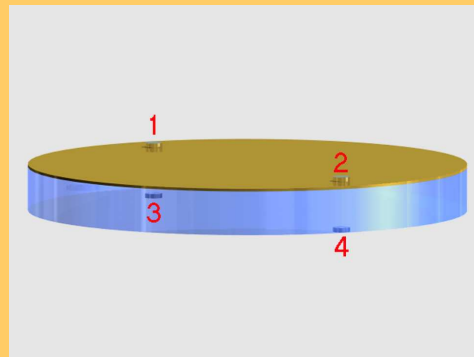


Chakrapani *et al.* Charge Transfer Equilibria Between Diamond and an Aqueous Oxygen Electrochemical Redox Couple, *Science* 30 November 2007, 1424-1430

Nebel, Surface-Conducting Diamond, *Science* 30 November 2007, 1391-1392



→ R↓ EXPECTED



→ R↑ REAL

Crystalline IWL + bulk water