

IQSE AMO QO Seminar Series

Wednesday, November 9th, 11:30 am ZOOM &
IQSE seminar room (MPHY 578)

Pizza will be served for IQSE members at 11:00 am. The talk will start around 11:30 am

Dr. Michael Denton

(Bioeffects Division)

Is water a key player in photobiomodulation?

ABOUT THE SPEAKER: Michael Denton, Ph.D. in Biochemistry. Worked in AFRL Laser Lab (San Antonio, TX) since 2000. Just completed work on AFOSR LRIR “Fundamental Effects of Light Absorption on Mitochondrial Function.”

EVENT DETAILS: Photobiomodulation therapy (PBMT) is a promising but poorly understood technique utilizing low irradiance LED or laser light to induce positive biological effects. Though the use of PBMT in clinical settings is increasingly accepted, the molecular mechanisms underlying these effects remain poorly characterized. The most commonly postulated mechanism is via light absorption at cytochrome c oxidase, also known as complex IV (C-IV) of the mitochondrial electron transport chain. It is hypothesized that light absorption at C-IV initiates a cascade of events subsequently resulting in increased ATP generation, and improved mitochondrial/cellular fitness. However, the mechanisms by which these pathways are initiated and how they establish observed beneficial outcomes are still unclear. We have found that C-IV enzyme kinetics can be enhanced by exposure to 808-nm NIR laser light. To address whether water vibrations are involved in PBM, we tested this system for C-IV stimulation at 2.52 THz.

ZOOM information:

<https://tamu.zoom.us/j/98156251523?pwd=QVdSdGxtL1UyY0g1L083SU5QR0QrUT09>

Meeting ID: 981 5625 1523

Passcode: 297578

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