

1) tFUS - Transcranial Focused Ultrasound Sonification

- Bianca Dang
(UCLA)

- current techniques : DBS, TMS

cost : ↑ , ↓
risk : ↑ , ↓
efficacy : ↑ , ↓

⇒ we need something with low cost, high efficacy

tFUS : High freq. acoustic energy waves that penetrate the skull

tFUS Impact on Targeted Regions

- Target 1: Amygdala (AG)
 - tFUS @ AG → increased cerebral perfusion
 - ↓ downregulate amygdalar regulation
 - ↑ increase emotional regulation
- Target 2: Entorhinal Cortex (ErC)
 - tFUS @ ErC → increase activity
 - ↑ working memory

WOW!!

→ Randomize Double Blind study was conducted.

SEARCH MORE ABT + FUS



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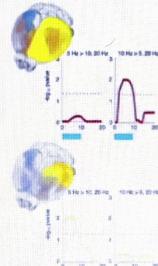
2) Optogenetic Stimulation of the mouse entorhinal cortex reshapes the whole brain dynamics

- Piergiorgio Salvan,
PhD

In summary

Q: How can local activity be selectively routed across the brain network?

- Distinct networks dynamics (or information streams) can be achieved by theta modulation of EC neuronal activity
- Neuronal multiplexing represents a mechanism for selective brain network communication
- Aberrant modulation of network dynamics might underlie cognitive decline



"Frequency - Modulation of Neuronal activity is a sufficient mechanism to enable selective brain network communication"

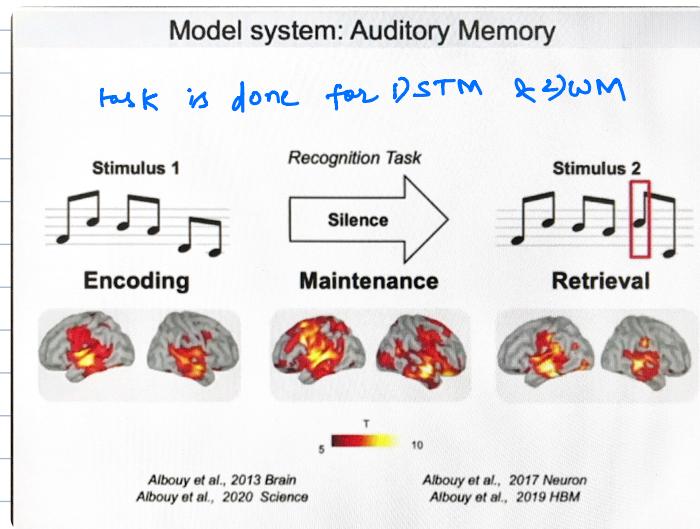
3) Electroconvulsive Therapy (ECT) treatment responsive multimodal brain networks - Shile Qi

I don't see future of ECT in compare to PSYCHEDELICS

:)

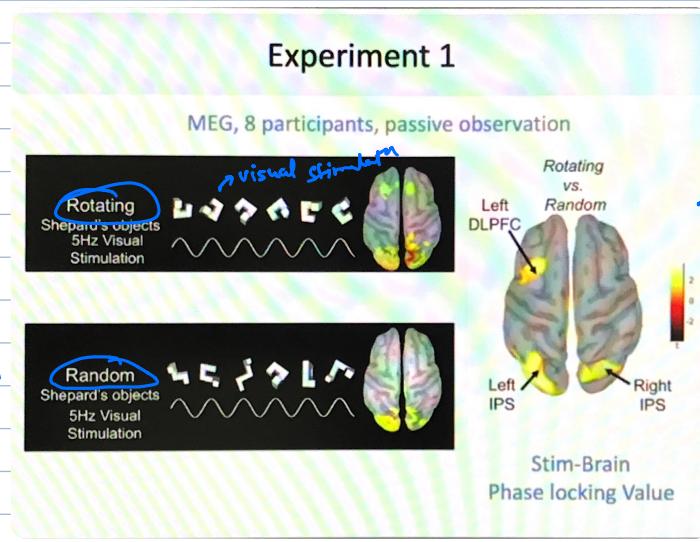
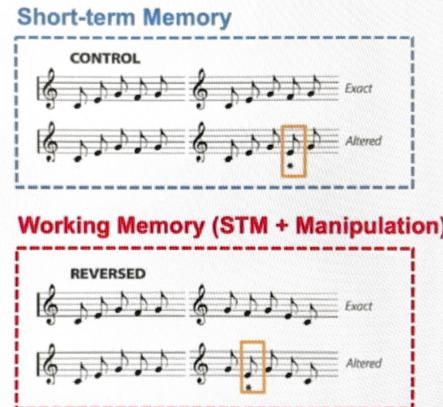
4) ENTRAINMENT of θ oscillations with visual rhythmic stimuli in order to boost auditory working memory (WM)

experiment design :



— Philippe Albouy

Working Memory vs. Short-term Memory

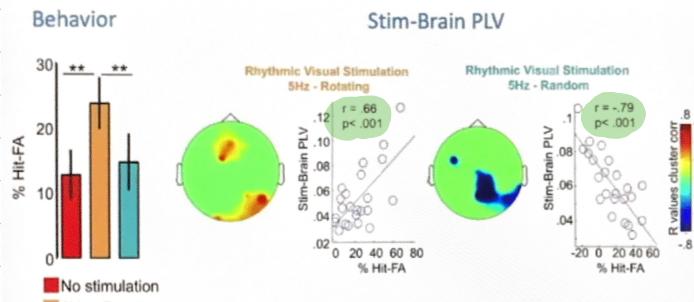


→ when we compare Random with Rotating we can observe that there is entrainment between auditory region & visual stimulus!

SO COOL

my thought : How is this related to Synesthesia?

Results



Entrainment of theta oscillations in the dorsal pathway predict behavioral performance in WM