TRANSCRANIAL ULTRASOUND STIMULATION (TUS)

WORKSHOP

Date:	**3 – 5 June 2026**
Location:	**Donders Centre for Cognition** room MM 01.620 Thomas van Aquinostraat 4 6525 GD Nijmegen The Netherlands
Contact:	neuromod@donders.ru.nl
Registration:	Brainbox Initiative

This 3-day course will provide you with in-depth training in Transcranial Ultrasound Stimulation (TUS), a non-invasive deep brain stimulation technique with unprecedented precision.

We move from physics to the clinic, covering devices, protocols, biomechanisms, confounds, study design, treatment planning, target engagement, and effects on behaviour, plasticity, and circuits. The course centres on hands-on training and welcomes all levels of experience.

The in-person training is complemented by online educational videos. We recommend that all attendees engage with the online course material before the Workshop, specifically courses 1 to 4.

Days open with lectures introducing the fundamental concepts, followed by hands-on training and demonstrations. The third day extends this with practicals on state-of-the-art systems and a symposium of invited talks from leading TUS researchers.

Wednesday, June 3: Foundations

09:00 – 09:10	Welcome and introduction
09:10 – 09:30	TUS past, present, future
09:30 – 10:00	Biomechanisms
10:00 – 11:00	TUS effects, protocols, and confounds
	Coffee break
11:15 – 11:45	Roundtable: elevator pitch of TUS research
11:45 – 12:30	Safety and screening
	Lunch
13:30 – 17:15 *Lab Rotations*	TUS foundation – Water tank, protocols, and hardware
	TUS planning – TUS Calculator & PRESTUS
	TUS preparation – Coupling and positioning
	TUS practical – Neuronavigation
17:15	*General closing of the day*

Thursday, June 4: Advanced

09:00 – 09:30	Plasticity & state-dependency
09:30 – 10:15	Physics, measurement, and reporting
10:15 – 11:00	Target planning – simulation
	Coffee break
11:15 – 11:45	Target verification – MR-ARFI
11:45 – 12:30	Target engagement – multimodal TUS
	Lunch
13:30 – 17:15 *Lab Rotations*	TUS foundation – Design your own experiment
	TUS foundation – Study design, confounds, & control
	TUS practical – K-Plan & integrated application
	TUS practical – Cognitive neuroscience experiment
17:15	*General closing of the day*
19:30	*Dinner*

Friday, June 5: State-of-the-art

09:00 – 11:30 *Lab Rotations* *Kapittelweg 29*	Integrated TUS-MRI – the CITRUS system US metrology – characterization & monitoring Q&A – Ask us anything!
11:30 – 11:45	*Walk to Maria Montessori*
Thomas van Aquinostr 4	*Lunch*
12:45 – 13:30	MRI guidance and target engagement in ultrasonic neuromodulation: the CITRUS pipeline – *Suhas Vijayakumar, Mainz*
13:30 – 13:45	Biasing decision flexibility with thalamic ultrasound stimulation – *Julian Kosciessa*
13:45 – 14:00	Ultrasound stimulation of a deep thalamic nucleus modulates large-scale neural synchrony in humans – *Vivek Sharma*
14:00 – 14:15	Ultrasonic neuromodulation of the human amygdala modulates threat learning and extinction – *Sjoerd Meijer*
	Coffee break
14:30 – 15:30	Bringing transcranial ultrasound stimulation from physics to the clinic – *Jean-Francois Aubry, Paris*
	Discussions and Drinks
16:30	*General closing of the workshop*