

TRANSCRANIAL ULTRASOUND STIMULATION (TUS) TOOLKIT



In-depth training and hands-on experience in Transcranial Ultrasonic Stimulation (TUS)

Date: 11 – 13 June 2025
Location: Donders Centre for Cognition
Thomas van Aquinostraat 4
6525 GD Nijmegen
The Netherlands
Contact: neuromod@donders.ru.nl

This 3-day course will provide you with in-depth knowledge about the non-invasive brain stimulation technique Transcranial Ultrasonic Stimulation (TUS).

In this toolkit will discuss physics, biomechanisms, protocols, study design, confounds, and effects on connectivity, plasticity, and circuits. The course is focused on hands-on training, catering to a wide diversity of expertise. The in-person training is complemented by an online educational videos, made available prior to the Toolkit.

Each day will start with informative lectures that provide an overview of the fundamental concepts, followed by practical training and demonstrations. On the third day, we will host a TUS symposium featuring presentations by leading experts from around the world. These talks will showcase the latest advancements in the field.

Wednesday, June 11: Introduction



09:00 – 09:10	Welcome and introduction
09:10 – 09:30	TUS overview
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
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11:45 – 12:45	Safety (consent and screening)
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12:45 – 13:30	<i>Lunch</i>
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Lab Rotations	TUS water tank, protocols, and hardware
13:30 – 14:15	Targeting demo: neuronavigation + K-Plan
14:30 – 15:15	
15:30 – 16:15	TUS preparation: coupling and positioning
16:30 – 17:15	
	PRESTUS simulation demo

17:15	<i>General closing of the day</i>
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Thursday, June 12: Study Design

09:30 – 10:10 | Connectivity, plasticity, and state-dependency

10:10 – 10:55 | Target planning and engagement, MR-ARFI

Coffee break

11:15 – 12:15 | TUS physics, measurements, and reporting by Elly Martin

12:15 – 13:30 | *Lunch* (consent and screening)

13:30 – 14:15 | TUS in practice (cognitive task demo)

14:30 – 15:15 | Study design & confounds + TPO experiment control/coding

15:30 – 16:15 | US metrology – water tank

16:30 – 17:15 | Device monitoring + TUS calculator

17:15 *General closing of the day*

19:30 | *Dinner*



Friday, June 13: Symposium

On the final day of the Toolkit, we will host a TUS symposium featuring presentations by leading experts from around the world. These talks will showcase the latest advancements in the field. Full programme to follow.