

**2024 International Pharmaco-EEG (IPEG) Society's Conference
held at**

**Izmir University of Economics Faculty of Medicine
İzmir, Turkey**

November 21–24, 2024



**Sakarya Street No:156
35330 Balçova - İzmir / Turkey**

The meeting is generously supported by the following sponsors:



Neuroelectrics is a pioneering Spanish company specializing in EEG monitoring technologies aimed at advancing neuroscience research and clinical applications. At the forefront of our offerings is **Enobio**, a high-definition wireless EEG system designed for accurate brain activity monitoring in real-world settings. Enobio provides researchers and clinicians with the ability to collect high-quality EEG data, offering unparalleled flexibility and comfort, making it an ideal solution for both clinical trials and basic neuroscience studies. Partnering with us for your clinical trials gives you access to the latest and most advanced EEG technology on the market, providing a competitive edge in your field. We believe that our technology can make a real difference in your research, and we look forward to the opportunity to collaborate with you.

The Enobio EEG device is particularly well-suited for drug discovery research, as its sensitivity and specificity enable the detection of drug effects on brain function, including spontaneous EEG activity and event-related potentials. Its adaptable design accommodates a wide range of experimental tasks, while the advanced software and analytical tools facilitate data analysis and interpretation.

With the possibility of integrating diverse sensing and stimulation platforms, we also offer a state-of-the-art analysis pipeline and a powerful machine learning engine. Powered by Starlab technologies, we support data collection and experiment design, ensuring comprehensive and cutting-edge solutions for your research needs.

<https://www.neuroelectrics.com/>

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Transpharmation is an AAALAC-accredited preclinical contract research organisation. Recognised by drug developers worldwide for delivering best-in-class services to help our clients deliver life-changing medicines; science will always remain our passion. We specialise in cross-species and cross-therapeutic area translational pharmacology.

Our breadth of neuroscience expertise means clients are able to benchmark their compounds against clinical gold standards in well validated behavioural and molecular assays. These include PK & non-GLP safety, efficacy models in Pain, Epilepsy, Schizophrenia, Sleep, Depression & Anxiety, Dermatology, Metabolic Disease/Diabetes, Aging and Neurodegenerative Disorders. This is backed up by an array of technologies including EEG, biomarkers and video-based machine learning.

We are committed to on-time data delivery and flexibility, whether for gold standard models or innovative customized platforms. Our research services deliver the critical information needed to realize the full potential of your preclinical assets.

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The meeting is generously supported by the following sponsors:



We have developed the world's most advanced, at-home, medical grade, flexible data collection and analytics platform to solve some of the biggest challenges in monitoring functional brain health and brain disorders. Brain disorders are a growing global challenge, but drug discovery and management of these CNS diseases are hampered by late diagnosis, poor stratification, and difficulty in monitoring patients.

The **NeuLogiq® platform** is designed to be the gold-standard for CNS assessments, providing the critical data and insight needed for faster, more robust, and cost-effective clinical trials that improve the delivery of new therapies to patients. It allows for frequent in-clinic and at-home use, combining neurophysiological monitoring (EEG) time-linked with a range of assessment tools.

Cumulus was formed in collaboration with leading global pharmaceutical companies to meet the industry's complex clinical trial needs. We are the only company with a 'paid-in' pharma advisory consortium, and several of these companies have studies underway using Cumulus' platform.

<https://cumulusneuro.com/>

2024 IPEG Conference Program-At-A-Glance

Unless stated otherwise, all events occur in **Main Building, Conference Hall**
of Izmir University of Economics, Fevzi Çakmak, Sakarya Caddesi No:156, 35330 Balçova/Izmir, Türkiye (Turkey)

Time		Nov 21 [THURS]	Nov 22 [FRI]	Nov 23 [SAT]	Nov 24 [SUN]		
EST	Izmir						
1:00	9:00	Arrival & Registration	Coffee/Tea+Light Breakfast & Registration	Coffee/Tea+Light Break- fast & Registration	Coffee/Tea+Light Break- fast & Registration		
1:15	9:15						
1:30	9:30	Coffee/Tea+Light Breakfast & Registration	Welcome & Introductions	Welcome & Introductions	Welcome & Introductions		
1:45	9:45	Welcome & Introductions	Symposium 3: Psychedelics & EEG [M. Brunovsky]	Symposium 5: Clinical EEG - From Childhood to Aging [C Başar-Eroğlu & G Yener]	Symposium 7: Hot Topics [IPEG Board]		
2:00	10:00	Symposium 1: Hans Berger 100 Years [S. Olbrich]	Páleníček T: Hyperscanning during Ayahuasca ceremony in the amazon – a field study	Bahar Güntekin: Gamma oscillations and gamma entrainment in Alzheimer's disease	EEG wakefulness regula- tion & ketamine re- sponse in treatment-re- sistant depression - A preliminary replication analysis [Anna Monn]		
2:15	10:15	Sebastian Olbrich: A little bit of History, a little bit of Future			Wavelet Phase Coher- ence as A Neuromarker: Insights from Healthy Controls vs Clinical Groups [Sümeyye Özdemir]		
2:30	10:30	Aydin Akan: EEG Signal Processing & Classification Applica- tions Using Machine and Deep Learning Methods			Nikolič M: The effects of in- tramuscular injection of 5- MeO-DMT on EEG – an ob- servational field study	Birgit Mathes: Including EEG-Measures within lon- gitudinal developmental studies-concepts and pre- liminary data from a Ger- man cohort study	A Novel Model of Schizo- phrenia: Insights from Electric Activity in Gna- thonemus petersii [Ivana Chrtková]
2:45	10:45				Mahmoud Hassan: Toward pre- cision psychiatry using HD-EEG & normative modeling	Ngo C: Meditation beyond relaxation - The Silent Mind: Alpha suppression as a way to reduce fluctuations of consciousness	Görsev Yener: Age-re- lated aspects of gender differences in event-re- lated oscillations
3:00	11:00	Q&A/Break	Luan L: Acute subjective and EEG effects of extended DMT administration	Yağmur Özbek İşbitiren: Changes in the EEG-Event related oscillations in mild cognitive impairment and healthy elderly with high and low depression symp- toms		Modulation and Partial Reversal of MK-801 Ef- fects on 40-Hz and 50-Hz Auditory Steady-State Response (ASSR) in Rats [Geoffrey Viardot]	
3:15	11:15				KEYNOTE 1 [P. Drinkenburg]: Claudio Babiloni: The Dark Side of Precision Medicine in Alzheimer's Disease be- tween Brain Amyloidosis and Neurodegeneration	Q&A/Break	Lunch & Poster Session
3:30	11:30	Q&A/Break	Lunch & Poster Session	Awards & Concluding Remarks			
3:45	11:45				Lunch & Poster Session	Lunch & Poster Session	Free Time
4:00	12:00	Lunch & Poster Session	Lunch & Poster Session	Free Time			
4:15	12:15				Lunch & Poster Session	Lunch & Poster Session	Free Time
4:30	12:30	Lunch & Poster Session	Lunch & Poster Session	Free Time			
4:45	12:45				Lunch & Poster Session	Lunch & Poster Session	Free Time
5:00	13:00	Lunch & Poster Session	Lunch & Poster Session	Free Time			
5:15	13:15				Lunch & Poster Session	Lunch & Poster Session	Free Time



5:30	13:30			
5:45	13:45			
6:00	14:00	Symposium 2: Sleep [M. Zeising]	Symposium 4: Transla- tional/Industry [S. Leiser]	Symposium 6: AI & Beyond [Pim Drinken- burg]
6:15	14:15	Cagatay Demirel: Electrophysio- logical blueprint of lucid dream- ing: sensor and source level sig- natures	Mihály Hajós: Evoked Gamma Oscillation (Spec- trisTM) as a Potential Thera- peutic Intervention for Alz- heimer’s Disease	Hanneke van Dijk: Devel- oping a Deep-Learning Transdiagnostic Bi- omarker for Impulse Con- trol and Sleep in Psychia- try: Implications for Treatment Prediction in Psychiatric Disorders
6:30	14:30			
6:45	14:45	Thorsten Mikoteit (Virtual): Predictive Biomarkers for De- pression	Andrea Plano: Pharmaco- logical Effects of the Novel NR2B Modulator Bi 1569912 on EEG in a Phase I Study	Nikita van.der.Vinne: De- velopment, blinded out- of-sample validation & prospective testing of EEG biomarkers in the treat- ment of depression
7:00	15:00			
7:15	15:15	Thomas Penzel (Virtual): Wear- able sensors for sleep medicine & sleep research: physics essen- tials to understand their poten- tial and pitfalls (virtual)	Aureli Soria-Frisch: Combin- ing AI and neurotechnology to address brain health	Kjartan Frisch Herrik: Us- ing EEG as translational tool in the pursuit of novel rapid acting antide- pressants
7:30	15:30			
7:45	15:45	Q&A/Break	Roger Redondo: Integrating Machine Learning with EEG for Enhanced Pharmacologi- cal Insights	Sebastian Olbrich: Deep Learning, Future of EEG analysis?
8:00	16:00	General Assembly – IPEG Members Only	Stephanie Jones: Computa- tional Modeling and Analysis Tools for Understanding Pharmacodynamics of EEG Biomarkers (Virtual)	Q&A/Break
8:15	16:15			
8:30	16:30		Corey Puryear: Computa- tional approaches for devel- oping biomarkers of insom- nia [virtual]	KEYNOTE 3 [N. Jaworska]: Judith Ford (Virtual): Event-related potentials (ERPs) in people on the schizophrenia spectrum: What we have learned in 50 years (Virtual)
8:45	16:45			
9:00	17:00	Free Time or Organized Trip (Bus Trip of Izmir/Grand Ba- zaar/Pier Late Snack)	Q&A/Break	Free Time
9:15	17:15		KEYNOTE 2 [S. Leiser]: Amit Etkin (Virtual): Machine learning implemen- tation on EEG	
9:30	17:30			
9:45	17:45		Q&A/Break	
10:00	18:00		Q&A/Break	
10:15	18:15			
10:30	18:30			
10:45	18:45		Gala Dinner – Zaitun Restaurant	
11:00	19:00			
11:15	19:15			

KEYNOTE SPEAKERS BIOS

Keynote Lecture 1:
**“The Dark Side of Precision Medicine in Alzheimer’s Disease
between Brain Amyloidosis and Neurodegeneration”**

Dr. Claudio Babiloni

Full Professor in Physiology, University of Rome “La Sapienza”, Italy



Dr. Babiloni is a Full Professor of Physiology at the Department of Physiology and Pharmacology “V. Erspamer”, University of Rome “La Sapienza”.

He has made significant contributions to Cognitive Neuroscience and Clinical Neurophysiology, particularly his work concerning the role of brain EEG rhythms in regulating cortical arousal and vigilance in the resting state condition in humans. Professor Babiloni has also worked on biomarkers for Alzheimer’s disease, showing that cortical EEG rhythms are related to global cognition and signs of amyloid burden and atrophy in the brain of patients with prodromal and overt Alzheimer’s disease.

He is the co-founder and current Leader of the PDWAVES Consortium from 2014 for investigating abnormalities in neurophysiological mechanisms of quiet vigilance in patients suffering from Parkinson’s, Lewy Body, and Alzheimer’s diseases by advanced EEG techniques (www.pdwaves.eu). His roles also include Senior Chair of the Special Interest Group in “Advanced EEG/MEG Techniques in Clinical Research” (2021-2022) for the International Federation of Clinical Neurophysiology (IFCN), Member of the Scientific Committee of the International Federation of Clinical Neurophysiology (IFCN), and former member of the Advisory Council (2022-2024) for The Alzheimer’s Association International Society to Advance Alzheimer’s Research and Treatment (ISTAART). Professor Babiloni co-authored more than 350 peer-reviewed articles registered in PubMed.

Keynote Lecture 2:
“Machine learning implementation on EEG” (virtual)

Dr. Amit Etkin

Founder and CEO, Alto Neuroscience
General Psychiatry and Psychology, Stanford University School of
Medicine, USA



Dr. Amit Etkin is the founder and CEO of Alto Neuroscience, a clinical-stage biotechnology company pioneering precision psychiatry. Dr. Etkin is a trained psychiatrist, neuroscientist, and served on Stanford University’s faculty for over a decade before launching Alto out of his research lab. As a tenured Professor, Dr. Etkin became an international leader in the neuroscience of psychiatric disorders and their treatments, receiving an NIH Director’s Pioneer Award for precision psychiatry work. He has a proven track record of success with publications in high-impact journals, raising extensive private and public funding, and managing a large and diverse team of scientists, clinicians, and engineers towards a shared scientific vision. Dr. Etkin took Alto public on the NYSE (ANRO), and also received an EY Entrepreneur of the Year award.

Keynote Lecture 3:
“Event-related potentials (ERPs) in people on the schizophrenia spectrum: What we have learned in 50 years” (Virtual)

Dr. Judith M. Ford

Co-Director of the Brain Imaging and EEG Laboratory, University of California in San Francisco, USA



Judy Ford received her PhD in Neuroscience from Stanford University Medical School in 1975. She stayed on at Stanford in the Psychiatry Department and climbed the faculty ladder until 2004 when she left for Yale University. In 2007, she moved back to California and took a faculty position in Psychiatry at the University of California, San Francisco, where she co-directs the Brain Imaging and EEG Laboratory at the San Francisco VA Medical Center. She has had an enduring interest in EEG-based methods since the early 1970s and later added MRI-based methods. Her early work focused on aging and Alzheimer’s disease, but she later transitioned to studying the pathophysiology of the schizophrenia spectrum. She was recently named president of the Scientific Council of the Brain & Behavior Research Foundation (BBRF), the nation’s top non-governmental funder of mental health research grants, including NARSAD Young Investigator grants.

Thursday, November 21st, 2024

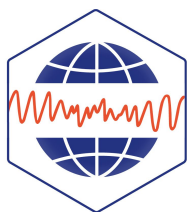
Local Times, Türkiye (GMT+3)

- | | |
|-------------|---|
| 9:00-9:45 | Arrival & Registration, Coffee/Tea & Light Breakfast |
| 9:45-10:00 | Welcome & Introductions |
| 10:00-11:45 | Symposium 1: Hans Berger 100 Years [S. Olbrich] <ul style="list-style-type: none"> – <u>Sebastian Olbrich</u>: A little bit of History, a little bit of Future – <u>Aydin Akan</u>: EEG Signal Processing & Classification Applications Using Machine and Deep Learning Methods – <u>Mahmoud Hassan</u>: Toward precision psychiatry using HD-EEG & normative modeling |
| 11:45-12:00 | Q&A/ Break |
| 12:00-13:00 | KEYNOTE 1 [P. Drinkenburg]:
Claudio Babiloni: The Dark Side of Precision Medicine in Alzheimer's Disease between Brain Amyloidosis and Neurodegeneration |
| 13:00-14:00 | Lunch & Poster Session |
| 14:00-15:45 | Symposium 2: Sleep [M. Zeising] <ul style="list-style-type: none"> – <u>Cagatay Demirel</u>: Electrophysiological blueprint of lucid dreaming: sensor and source level signatures – <u>Thorsten Mikoteit</u> (virtual): Predictive Biomarkers for Depression – <u>Thomas Penzel</u> (virtual): Wearable sensors for sleep medicine & sleep research: physics essentials to understand their potential and pitfalls |
| 15:45-16:00 | Q&A/ Break |
| 16:00-17:00 | IPEG Society General Assembly – IPEG members only |
| 17:00- | Free time or organized local trip to experience İzmir
Brief details about local trip:
- Registration is required as space is limited. Registration was part of online registration. <i>If you change your mind/need information, email us or discuss with local conference organizers (on-site).</i>
-@17:00-18:00 → Bus tour of İzmir (leaving from venue; paid for by IPEG)
-@18:00 → Arrival at historical centre (clock tower/tour of grand bazaar)
-@19:00 → Snacks at local café/mingling/walking (soiree; Konak Pier: https://www.soiree.com.tr/) – Paid for by IPEG on a first-come/first-served basis/while quantities last (drinks are <u>not</u> covered/paid for by IPEG)
-@21:30 → Bus back to venue (bus fee is covered by IPEG) |

Friday, November 22nd 2024

Local Times, Türkiye (GMT+3)

- | | |
|------------|--|
| 9:00-9:30 | Arrival & Registration, Coffee/Tea & Light Breakfast |
| 9:30-9:45 | Welcome & Introductions |
| 9:45-12:30 | Symposium 3: Psychedelics & EEG [M. Brunovsky] <ul style="list-style-type: none"> – <u>Tomáš Páleníček</u>: Hyperscanning during Ayahuasca ceremony in the amazon – a field study – <u>Marek Nikolič</u>: The effects of intramuscular injection of 5-MeO-DMT on EEG – an observational field study |



- Chuong Ngo: Meditation beyond relaxation - The Silent Mind: Alpha suppression as a way to reduce fluctuations of consciousness
- Lisa Luan: Acute subjective and EEG effects of extended DMT administration
- Čestmír Vejmla: Neural correlates of visual perceptual alterations induced by psilocin in rats

12:30-13:00

Q&A/ Break

13:00-14:00

Lunch & Poster Session

14:00-17:15

Symposium 4: Translational/Industry EEG [S. Leiser]

- Mihály Hajós: Evoked Gamma Oscillation (Spectris™) as a Potential Therapeutic Intervention for Alzheimer's Disease
- Andrea Plano: Pharmacological Effects of the Novel NR2B Modulator BI-1569912 on EEG in a Phase I Study
- Aureli Soria-Frisch: Combining AI and neurotechnology to address brain health
- Roger Redondo: Integrating Machine Learning with EEG for Enhanced Pharmacological Insights
- Stephanie Jones (virtual): Computational Modeling and Analysis Tools for Understanding Pharmacodynamics of EEG Biomarkers
- Corey Puryear (virtual): Computational approaches for developing biomarkers of insomnia (presenting on behalf of Jacob Donoghue)

17:15-17:30

Q&A/ Break

17:30-18:30

KEYNOTE 2 [S. Leiser]:**Amit Etkin (virtual): Machine learning implementation on EEG**

18:30-19:00

Q&A/ Break

19:00-22:00

Gala Dinner, Zaitun Restaurant

- **Registration required (first 60 registrants can be accommodated).** Registration was part of online registration. *If you change your mind/need information, please email us or tell local conference organizers (on-site).*
- *Dinner and transportation costs covered by IPEG/alcohol; drink costs not covered by IPEG.*
- Bus will leave at 19:00 from conference venue.
- Dinner → 19:30-22:00 (buses return at 22:00).
- For those who wish to make their own way to the restaurant Address: Sahilevleri, Ulupınar Sk. No:18, 35320 Narlıdere/İzmir, Türkiye
<https://zaitunizmir.com/en/>

Saturday, November 23rd*Local Times, Türkiye (GMT+3)*

9:00-9:30

Arrival & Registration, Coffee/Tea & Light Breakfast

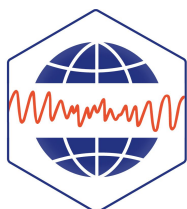
9:30-9:45

Welcome & Introductions

9:45-12:00

Symposium 5: Clinical EEG - From Childhood to Aging**[C Başar-Eroğlu & G Yener]**

- Bahar Güntekin: Gamma oscillations and gamma entrainment in Alzheimer's disease



- Birgit Mathes: Including EEG-Measures within longitudinal developmental studies-concepts and preliminary data from a German cohort study
- Görsev Yener: Age-related aspects of gender differences in event-related oscillations
- Yağmur Özbek İşbitiren: Changes in the EEG-Event related oscillations in mild cognitive impairment and healthy elderly with high and low depression symptoms

12:00-12:30

Q&A/ Break

12:30-14:00

Lunch & Poster Session

14:00-16:15

Symposium 6: AI & Beyond [Pim Drinkenburg]

- Hanneke van Dijk: Developing a Deep-Learning Transdiagnostic Biomarker for Impulse Control and Sleep in Psychiatry: Implications for Treatment Prediction in Psychiatric Disorders
- Nikita van der Vinne: Development, blinded out-of-sample validation & prospective testing of EEG biomarkers in the treatment of depression
- Kjartan Frisch Herrik: Using EEG as translational tool in the pursuit of novel rapid acting antidepressants
- Sebastian Olbrich: Deep Learning, Future of EEG analysis?

16:15-16:45

Q&A/ Break

16:45-17:30

KEYNOTE 3 [N. Jaworska]

***Judith Ford (virtual): Event-related potentials (ERPs) in people on the schizophrenia spectrum: What we have learned in 50 years**

17:45-18:00

Q&A/ Break

Sunday, November 24th 2024

Local Times, Türkiye (GMT+3)

9:00-9:30

Arrival & Registration, Coffee/Tea & Light Breakfast

9:30-9:45

Welcome & Introductions

9:45-11:15

Symposium 7: Hot Topics [IPEG Board]

- Anna Monn: EEG wakefulness regulation & ketamine response in treatment-resistant depression - A preliminary replication analysis
- Sümeyye Özdemir: Wavelet Phase Coherence as A Neuromarker: Insights from Healthy Controls vs Clinical Groups
- Ivana Chrtková: A Novel Model of Schizophrenia: Insights from Electric Activity in *Gnathonemus petersii*
- Inga Griskova-Bulanova: Serotonergic modulation of resting-state EEG microstates: a view from microdosing with psilocybin mushrooms & inhalation of DMT
- Geoffrey Viardot: Modulation and Partial Reversal of MK-801 Effects on 40-Hz and 50-Hz Auditory Steady-State Response (ASSR) in Rats

11:15-11:30

Q&A/ Break

11:30-12:00

Awards & Closing Remarks

Hybrid/Virtual Symposia Information

Below, are the zoom links to be used by virtual attendees and virtual speakers

IPEG 2024 – 11/21/2024

Join Zoom Meeting:

<https://ieu-edu-tr.zoom.us/j/82301535435?pwd=GSbwDlgrWy5fiDfeLYXMy9qzVgl44.1>

ID: 823 0153 5435

Passcode: 121491

IPEG 2024 – 11/22/2024

Join Zoom Meeting:

<https://ieu-edu-tr.zoom.us/j/81539071533?pwd=xwBWLmrl1bB2j1QiAvb9YxPg2vUa4q.1>

ID: 815 3907 1533

Passcode: 934688

IPEG 2024 – 11/23/2024

Join Zoom Meeting:

<https://ieu-edu-tr.zoom.us/j/82800387197?pwd=ISo0yLIFcWhOqnDXGAbAyIbUfRqGFQ.1>

ID: 828 0038 7197

Passcode: 935907

IPEG 2024 – 11/24/2024

Join Zoom Meeting:

<https://ieu-edu-tr.zoom.us/j/89855728986?pwd=eDYHtN4ryaSEFdPkbJYPAj5e55jWle.1>

ID: 898 5572 8986

Passcode: 729502

If you have any questions, please reach out to us at:

ipeg.society.info@gmail.com