



# **XLIII. Electroencephalography**

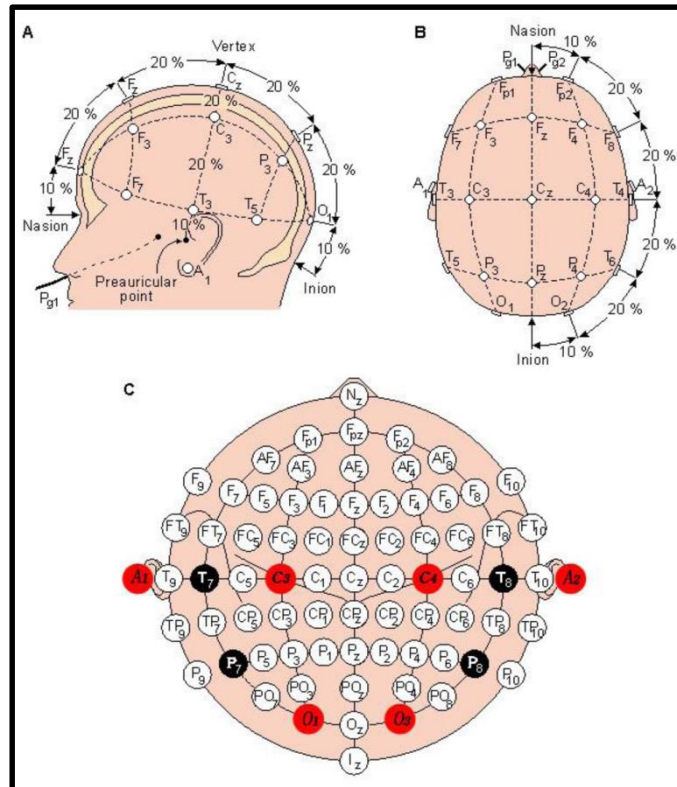
## **XLIV. Evoked potentials**

# Electroencephalography (EEG)

- method used for the registration of electrical potentials of the brain
- Hans Berger (1929)
  - scalp EEG
  - electrocorticogram (ECoG)
  - stereoelectroencephalogram (SEEG)
  - macro EEG
  - micro EEG

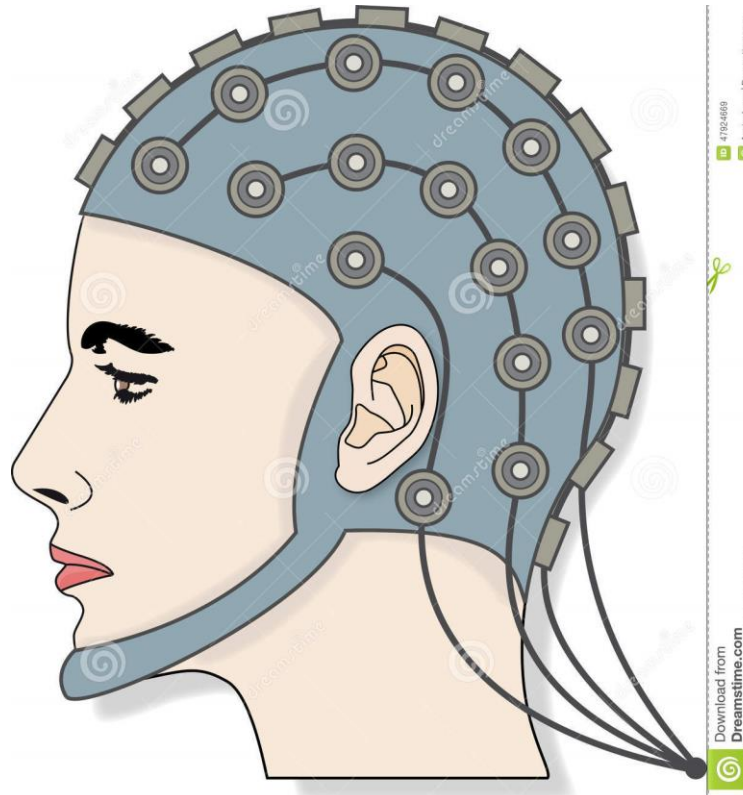
# Electroencephalography

- placement of electrodes: system 10 - 20



# Electroencephalography

- attachment of electrodes during scalp EEG



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# Electroencephalography

- **alpha rhythm:** frequency **8-13 Hz**, noticeable with eyes closed, in awake, healthy and mature brain, especially in parietooccipital lobes
- **beta rhythm:** frequency **14-30 Hz**, noticeable with open eyes, sometimes constantly over frontal area. Phenomenon of suppression of the alpha rhythm by opening eyes – alpha attenuation reaction (AAR).
- **theta rhythm:** frequency **4-7 Hz**, noticeable in children, in healthy adult only during waking sleep stages
- **delta rhythm:** frequency **1-3 Hz**, in neonates and infants, in healthy adults only during deep non-REM sleep

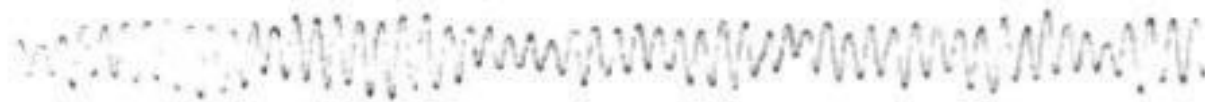
# Electroencephalography

- EEG waves

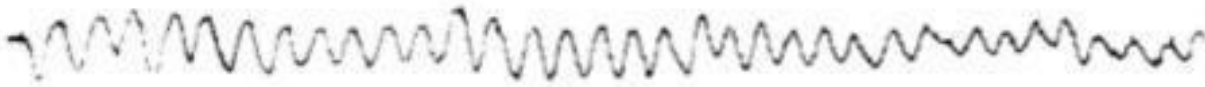
Beta



Alpha



Theta



Delta



# Electroencephalography

- EEG record - example



# Evoked potentials (EP)

- electrical manifestation of brain activity triggered by external sensory stimulus
- evaluation of the functional state of the nerve pathway
- TYPES OF EP:
  - VEP (visual)
  - AEP (auditory)
  - SEP (somatosensory)
  - MEP (motoric)
  - SSEP (stable)
  - ERP (cognitive)



# Evoked potentials

- wave p300 (mean latency 300ms)

