#### Design of the study and the experimental data

We analyzed records from 67 healthy men aged 21 ± 3 years (mean ± standard deviation) with an average level of physical activity. The study protocol was as follows: 6-minute resting period (directory R1), 6 minutes of the Stroop color word test (directory S1), 6-minute resting period (directory R2), 6 minutes of the mental arithmetic test (directory S2). During the experiment, volunteers breathed spontaneously. During stages R1 and R2, volunteers were asked to relax. The protocols for performing the Stroop color word test and mental arithmetic test were taken from [Mikhail D. Prokhorov, Ekaterina I. Borovkova, Aleksey N. Hramkov, Elizaveta S. Dubinkina, Vladimir I. Ponomarenko, Yurii M. Ishbulatov, Alexander V. Kurbako, Anatoly S. Karavaev Changes in the Power and Coupling of Infra-Slow Oscillations in the Signals of EEG Leads during Stress-Inducing Cognitive Tasks // Special Issue Artificial Intelligence in Neuroscience. 2023. 13 (14), 8390; <https://doi.org/10.3390/app13148390>].

During the testing, we recorded the signals of respiration using a recursion sensor, ECG in standard Einthoven lead I, and PPG from the distal phalanx of the left ring finger with a reflected light sensor with a wavelength of 532 nm. All signals were recorded using the standard certified digital electrocardiograph Encefalan\_EEGR-19/26 [Medicom MTD: Electroencephalographic studies “Encephalan-EEG”. Available online: Medicom-mtd.com (accessed on 23 June 2023).] with 250 Hz sampling frequency and 16-bit resolution. The signals were filtered in the bandpass of 0.016–70 Hz.