



# ***Southern Federal University in «Post-graduate Training Network in Biotechnology of Neurosciences (BioN)»***

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Basic researches and educational subdivision  
SFU are participate in this program;

- Department of Human and Animals Physiology;
- Department of Biophysics;
- Kogan Research institute of neurocybernetic;
- Research institute of Valeology;
- Research institute of biology.



## Direction for Master educational program «Neurophysiologic mechanisms of consciousness»:

- Cellular neuroscience;
- Genesis of rhythmical activity;
- Cognitive neuroscience;
- Computational neuroscience;
- Brain`s functional state.



## Cellular neuroscience

Lectures, seminars and trainings

- **Neuron & glia: from cell to brain**
- **Synaptic processes**
- **Basics of neuropharmacology**
- **Synergy and perception**
- **Introduction into detailed neuromodeling**

# Genesis of rhythmical activity

- Neuronal interaction and genesis ERP
- Subcortical-cortical mechanisms of ERP's generations
- Interaction between some rhythmical activities EEG



**Multichannel recording of animals (cat, rat, frog) brain biopotentials using Plexon MAP Z32**

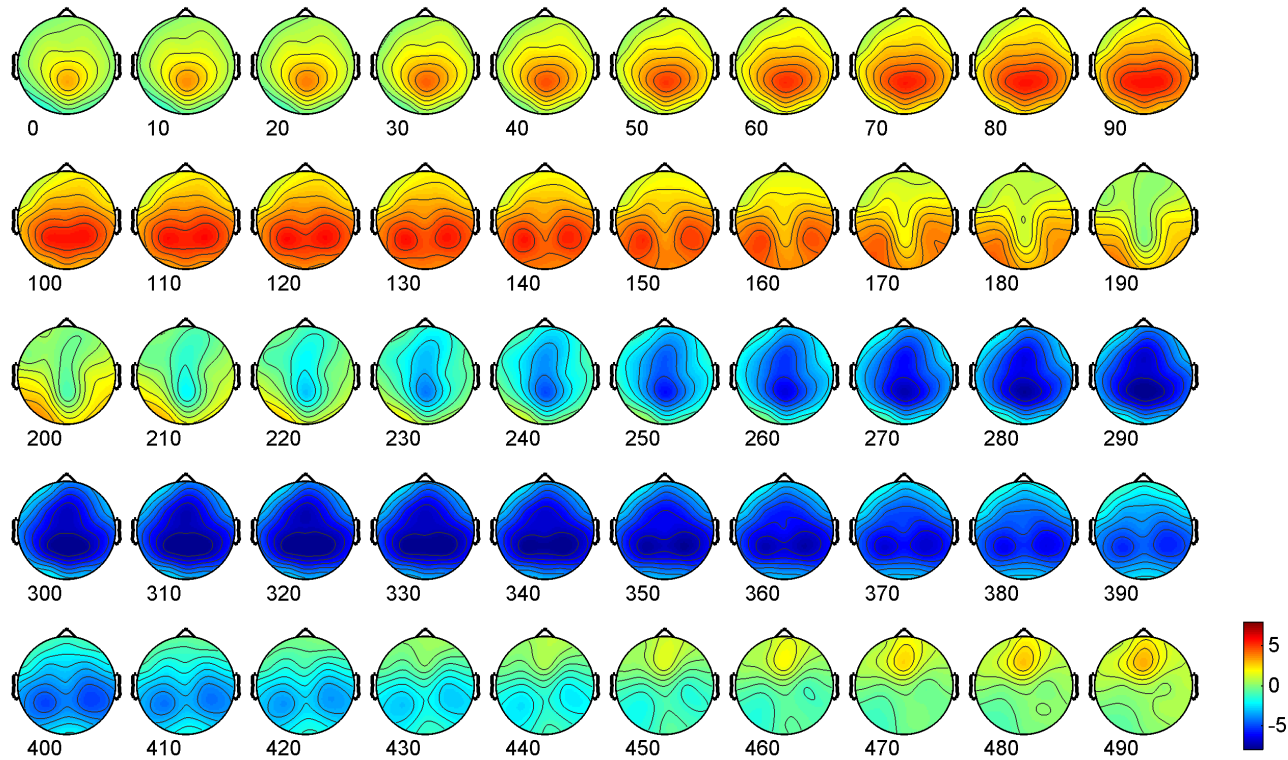
# Electron microscopy Technai Spirit 12 (Phillips) Fluorescence microscopy and microfluorometry



Fluorescence microscope for  
electrophysiology study Nikon  
ECLIPSE FN1

Microfluorometric setup based on  
fluorescence microscope Lumam I3

Maps, vac16, v, D

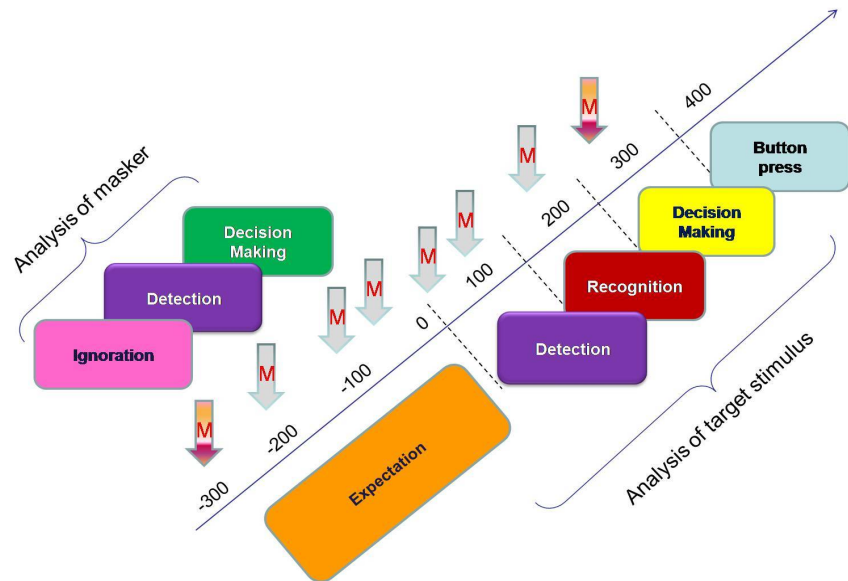


ERP components'  
mapping using  
MATLAB



# Cognitive neuroscience

- Neurophysiologic mechanism of sensorimotor integration;
- Cross-modal interaction between visual and audition stimulus;
- Neurophysiologic mechanism of interaction between voluntary and involuntary attention;
- Neurophysiologic mechanism of interaction between endo- and exogenous activities;
- Neurophysiologic mechanism of verbal information;
- Neurophysiologic mechanism of intellegency skill (arhythmic, typing).
- Neurophysiologic mechanism of timing.





# Brain`s functional state

- Neurophysiologic mechanism of interhemisphere interactions;
- Mechanisms organizations of functional states;
- Correction means for control functional states.

Thank you of  
attention!