



BEM SECTION <https://www.cirps.it/en/bem-section/>

Sezione Biometeo&Idroclimatologia Medica <https://www.cirps.it/en/biometeo-section>

IITM International Institute of Telemedicine

WORKSHOP FRIDAY 22/3/2024 17.00-20.00

<https://us06web.zoom.us/j/87627354133?pwd=TUoiJaa02JA08Zrac4T4oAVaP4CAN2.1>

The complete invite, with password etc, is

<https://us06web.zoom.us/j/87627354133?pwd=olcKPWlbTadHGelSigk2EdjuseXMCw.imOMVxuYb3ckNznT>

Pass code: 309330

Personalized Intelligent Systems by Electrophysiology (Ecg, Eeg, HRV, Oranta, Meridian Technology), Telemedicine, and others driven applications.

Topics

Increase Benefits/Risk and Benefits/Cost ratio in medical diagnostics and correlate therapy in chronic diseases through coherent driven personalized therapy is the main goal of Personalized Intelligent System by Electrophysiology in Meridian Technology and Telemedicine lines of R&D.

The goal of this idea-project will be to join through an integrated system based on ICT useful to the best personalized diagnosis and therapy of patients affected or at risk of chronic cardiorespiratory diseases (as Heart Failure, COPD, Asthma and even Covid-19 diseases), and chronic pain, by means of intelligent management and analysis of health data acquired by specific monitoring sensors (Internet of Things - IoT) for telecare services and using also the methods of the electrophysiology of skin in particular Mini ECG and Meridian Technology (MT), APEC, Oranta, QRMA, etc.

OPENING WORK Francesco Sicurello President IITM

Vincenzo Naso Director CIRPS, Dmytro Vakulenko Head Medical Informatics dep. TNMU

They will speak among others

Francesco Sicurello, Luigi Campanella, Dmytro Vakulenko, Volodymyr Shevchuk, Odoardo M. Calamai, Massimo Sperini, Matteo Bottesi, Konstantin Apthikin, Madan Thangavelu, Anton Sharypanov, Konstantin Apthikin, Vincenzo Valenzi

Some lines of R&D to integrate in a common plane of advanced Integrative diagnostics and therapy in Medicine and Telemedicine

1) **Oranta project:** <https://oranta-ao.com>

Dmytro Vakulenko, prof. head medical informatics department TNMU, CEO LLC Innovation in medicine, dmitro_v@ukr.net, +380986205057

SoftDeepMedTech innovation of the Oranta-AO software for any blood pressure monitor in the world. Thanks to in-depth analysis of the blood pressure monitor's pulsation, Oranta-AO can diagnose the heart, blood vessels and nervous system, and the artificial intelligence algorithm can predict the risk of heart, lung and mental diseases with AI support. Oranta-AO innovation able to provide advance monitoring online influence medicine to functionality heart, lung, ANS and CNS in personal Life. Predict risk disease based AI solution. Provide personalize and group information about traction clinical trials and tests. Oranta-AO information system able support smartwatch ECG and BP, wearable ECG devices.

Oranta-AO able provide personal dashboard for personalise support patients by Clinical trial managers, medical staff.

Oranta-mis - Information system for personalize Telerehabilitation trajectory (online and of line format), goal rehab program identification, functional test providing, ICF, ICD classification,

multidisciplinary team collaboration, rehab program goal value identification, planning intervention for each expert on base goal rehab program, calendar patient and staff and Expert system with AI support.

<https://orcid.org/0000-0001-5062-9278>

2) **MISU project:** <https://anima.help> **Volodymyr Shevchuk, CEO, MISU, v.shevcvol@gmail.com, +380 50 448 45 78**

MISU combines a mobile app, MISU AI, MISU Watch and Apple Watch. The MISU application collects data from MISU or Apple watches, analyzes them with the help of artificial intelligence algorithms and generates a forecast of possible risks for users, sends messages to prevent cardiovascular and mental diseases before they occur. We combine mathematics, big data and clinical IT technologies.

3) **Anton Sharypanov, Ph.D., Head of Laboratory of Medical and Biological Informatics, Institute of Mathematical Machines and Systems NASU. anton.sha.ua@gmail.com +380503819381, Viber, Telegram, Signal.**

Topic of presentation: **"Harmony" - Automated Information Technology for Controlling Metronomic Breathing.**

[20/3, 09:32] Konstantin Aphthikin: The main goal of this project was to develop a simple contemporary solution to support breathing trainings on everyday basis. Breathing formulas for different tasks (calm down, relax etc.) are well known and various timing methods for them are used. Our technology uses real time data from mobile cardiac sensors to adjust breathing formula parameters. To detect the pulse beats in the incoming data stream we are using our original algorithm in order to setup timing of breathing formula according to operator's cardiac cycle length. The combination of different breathing formulas likewise the hypoxic tests that were implemented in our technology can

be used as stress tests to increase precision of functional state estimate, including people with asthma, diabetes etc. where the direct physical stress tests are not possible. Psychological rehabilitation is another vast field of application for this technology where it can be used as an auxiliary means alongside with traditional methods.

4) **QRMA Quantum Resonance Magnetic Analyzer** **BY ODOARDO MARIA CALAMAI Infn INFN Frascati**

Only diagnostics of organs, systems chemical and States of Consciousness
5 minutes 121 pag of data and analysis to verify in controlled and compared tests , but to clinical level seems quite promising

What is Quantum Resonance Magnetic Analyzer

[Q R M A] involves high-tech innovation

projects of medicine, bio-informatics, electrical engineering and other sciences. Using the quantum medicine as the theoretical basis, it applies the advanced electronic equipment to collect the weak magnetic field of human cells for scientific analysis, thereby analyzing and determining the tested person's health status and main problems and putting forward standard prevention recommendations. [Quantum Resonance Magnetic Analyzer] is individualized guide of health care consultation for full body and forward health science, and has the advantages of completeness, non-invasiveness, practicality, simplicity, fastness, economy, easy popularization, etc. With the depth and development of scientific research, it will make a greater contribution for the cause of human health, having a broad development and application prospect

5) **APEC (ELECTROCUTANEOUS PARAMETERS ANALYZER) and IONMETER** **Massimo Sperini, Mauro Santilli and Francesca Pulcini BEM section CIRPS**

The Functions of **APEC-300** are POTENTIAL LEVEL MEASURE; IMPEDANCE MEASURE; LOW-FREQUENCY ELECTRO-STIMULATING; ELECTRO-ACUPUNCTURE; ELECTRO-ACUPUNCTURE POINT DETECTION; SKIN HYGROMETER.

In the **potential** configuration we can measure a) the potential difference (d.d.p.) between two areas of a body (solid or liquid); b) between two areas of a body related to the mass; c) the potential of an area of the body. In particular APEC-300 is able to measure the bioelectric signals detected on the surface of a biological system (plants, animals, cell cultures, etc.); and skin.

The measurement frequency extends in the range from 0 to 30 Hz and the minimum detectable voltage value is 100 nV (1nV = 1 nanoVolt = 10^{-9} Volt, i.e. one billionth of a Volt). The duration time of the single recording can be adjusted up to a maximum of 300 s and is stored.

APEC-300 is endowed with an its internal software able of producing, for each measurement of the potential level as a function of time, a frequency analysis, that is, the Fourier components to the different orders. This particular performance allows to associate to each measure a kind of electromagnetic footprint, typical of an inanimate body, an aqueous solution, of the body district, of the organism, – animal, vegetable – or the cell culture, which are under examination.

The “**Ionmeter**” **AIM-101**, thanks to the precise electronic and the mechanical design, allow to measure with accuracy the following quantities:

1. the concentration of the small positive and negative ions (n +, n-);

2. the conductivity of the air due to small ions;
3. the spectrum of mobility;
4. the size of the ions;
5. the conductivity of the air due to small and intermediate ions;
6. the net space charge density;
7. the local atmospheric electric field at 1 m above the ground.

This "Ionmeter" allows the simultaneous and real-time reading of the concentration of positive and

negative ions with a measuring range that extends from 10 to 10^6 ions/cm³

and, with a measurement error on all scales of ± 10 ions /cm³.

Ions are captured by two coaxial structure cylindrical transducers with gold plated electrodes. Two power supplies with output voltage ranging from zero to 350V provide the right, biasing of the transducers. Inside each transducer, a specific air flux is guaranteed by using a regulated speed fan, enabling the ions on the electrodes to be turned into

voltage by two current/voltage converters based on amplifiers with extremely low bias current. Both converters are enclosed in a controlled temperature box to provide high stability in continuous measurements and through an operating temperature range from -20°C to + 50°C. Analog outputs are digitized and managed by the local microprocessor together with other data, such as transducer electric potential, ambient air temperature and air relative humidity.

All the acquired data are sent by the interface to the computer, where the main program allows data logging, data computing, results displaying and reporting. The management software of "Ionmeter" is a user-friendly tool that operates in Windows environments. Measurement set-up is easily configurable, and all options are stored within initialization file, and automatically loaded during the program start-up.

Concentration mode plots in real time, on a self-scaling graph, the positive and negative ion densities gathered by the ionmeter through the time. On the screen there are also shown the current measure parameters, such as Transducer Voltage, Air Speed, together with Air Conductivity and Mobility that are parameters related to ion density. Mobility mode plots as histogram the relationship between ion mobility and concentration. For each preset mobility step, the program adjust the measure parameters and averages the density data through the step time producing the relative histogram bar.

In both modes data can be stored on the computer to be reviewed and analyzed later. The software has also a Calibration function which allows the compensation of repetitive and ambient related measurements errors. Calibration is accomplished energizing the transducer and without air flux, collecting data during a fixed period of time to remove any error source that can affect the measure.

All recorded data can be reviewed and printer in graphic form using the standard Windows printer and exported in ASCII (text) format to allow further analysis.

- 6) **TEMOCO SYSTEM** by **Sicurello** team CNR Milan system of telemedicine for diagnostics of respiratory diseases
- 7) **HRV mini ecg R&D** **Konstantin Aphthikin**, https://www.iiimb.me/files/01-report-K_Apykhtin-telemedicine-310122-3--1-.pdf

8) Vincenzo Valenzi Luigi Campanella Meridiantech origin and development in the frame of ancient and modern science

The research led Sir John Eccles, in the 1970s, to a primitive attempt to use quantum fields in the study of synaptic functions which he had discovered a few years earlier. introducing the Theory of PSYCHONS which today appears to be the Tibetan bridge towards understanding Indian practices on disorders of the mind-body axis.

<https://siaecm.blogspot.com/2010/03/la-percezione-del-dolore-quello-che.html>

An electroquantum model for immunological intracellular interactions was developed by Jacques Benveniste, who in a parallel unknown to him, to the German research of Reinold Voll, Morel and Rash, developed technologies for the acquisition and recording of molecular signals and its use for diagnostics as developed over the last 15 years by Luc Montagnier Jamal Aissa and the Vitiello Del Giudice group of physicists. In this regard, Allan Widom introduced the BENVENISTE MONTAGNIER EFFECT, a biological manifestation of the Aharonov–Bohm effect. Three works by Widom et al in recent years have placed the subject of biological memories on a solid scientific basis, but as can be read in the conclusions of Widom's latest work A Widom et al 2021 IOP Conf. Ser.: Earth Environ. Sci. 853 012024 <https://iopscience.iop.org/article/10.1088/1755-1315/853/1/012024> : “This work need more development in fundamental physics, and open to a new understanding of many strange biological phenomena, in particular not linear phenomena that influence ad example mind brain body connections, effects of transdermic drug, that are without chemical reactions as also very low dosis of drug far from concentration in blood in the Benveniste Experiment. Bioelectrical function seems play a key role not only in heart with ECG but also in all internals organs that seems governed by electrical state of meridians connected that change their electric parameters in answer to any kind of strong and very low signals as showed in the article and in the review by Scalia Valenzi et coll. <http://ibb.kpi.ua/article/view/140255>

About these works it's of some interest read the conclusive remark of Work Group of FNOMCEO on these technologies for diagnostics of food intolerance:

“To the term of this short tracking shot on methods "Alternatives"(Tab.8.1) and their great spread of use, must do some reflections. —these methods not have ground works scientific proven, in bucking with their modern Medicine, where is it Yes search for of create paths diagnostic is therapeutic "EBM"; while being in use from years, without control in double blind that could show their effectiveness. **Exist instead demonstrations of their ineffectiveness.**

The risk of a utilization indiscriminate of methodologies not proven, as self-diagnosis from part of the patient or from doctors not experts of the matter, can he to conduct to serious impact on health of the patient, think to example to the delay of grow of malnutrition in children that not they follow a correct supply self-private of aliment fundamental, without really clinical indication; the failed recognition of a allergen dangerous for the life of the patient; yet worse, the risk of a delay diagnostic of diseases more serious, not recognized because considered "intolerances food " (Seine G.Bonadonna P.etto the.;Riv.Imm.eAll.Pediatric,December2004.) <file:///C:/Users/vinval/Desktop/FNOMCEO%20INTOLLERANZE%20.pdf> .

So while intolerance to food drug and other ABS, increase with the Iceberg of Chemical Multi Sensitivity, while the drug intolerance stay dangerously without no one diagnostics, while virus and bacteria in intracellular life are without a significative and useful detection,

treated as an alternative medicine such as chronic Lyme disease, which appears to be present and involved in many syndromes such as chronic fatigue, fibromyalgia, depressive syndromes etc.

May be useful look to these controversial development in biotechnologies and bioinformatics using Ohm Law $I=VxI$, Power Law $W=VxI$ that change with variation of resistance in answer to coherent or incoherent electromagnetic signals also very low, as in Zhadin Experiment, or in answer to quantum signal mediated by Vector Potential in Maxwell Equation $B = \sim x \sim A$ and try to implement them testing and looking, to verify their potential for diagnostics and also for a direct consequences of variations of entropy see also seminal report by Giuliano Preparata on The Role of QED in Medicine <https://www.uniglobus.it/files/01-centro-studi-biometeorologia.pdf>

that could be used for early diagnostics and correlate precision personalized approach to therapy with a syntropic or coherent approach to therapy in local or in telemedicine configuration,

also using the analysis of chemical, electromagnetic and quantum catalytic dynamics, that govern biochemical process in life, that will be discussed by Luigi Campanella Former President of Italian Society of Chemistry