

## EDITORIAL PREFACE

The 3<sup>rd</sup> Alexander Gurwitsch Conference on Biophotonics and Coherent Systems in Biology was held from September 27<sup>th</sup> to October 2<sup>nd</sup>, 2004. Contrary to the first two conferences from the same cycle which took place at Moscow State University in 1994 and 1999,<sup>1,2</sup> the latter one was hosted by V.I. Vernadsky Taurida National University (Simferopol, Crimea, Ukraine). In no case was this occasional. Modern Taurida University (re-established under this name a few years ago) regards itself as an inheritor of the same name institution that was opened in 1918 and existed as a University until 1924 (when it was renamed as a Pedagogical Institute). In many respects, the first Taurida University was a remarkable organization. Under severe conditions of a starting post-revolutionary civil war in Russia, when normal research and educational activity in the main centers (such as St. Petersburg and Moscow) became almost impossible, Taurida University succeeded in collecting a brilliant company of professors and students who did not want to emigrate from Russia but were willing to continue their activities in their native country. Among them was a famous geochemist and philosopher, Vladimir Vernadsky, who was for some time the Rector of Taurida University and who gave his name to the modern Taurida University. Soon he became a close friend of Alexander Gurwitsch, who was elected as a Professor of Histology of this University already in 1918. It took meanwhile almost a year for him together with his family to reach a relatively peaceful Crimean land by going from starving Petrograd (former and later St. Petersburg) through an enormous territory of Russia and Ukraine already separated into several fighting estates. Although the situation in Crimea was also quite far from idyllic, and a civil war with all of its shortages and cruelties soon reached this area, Taurida University could provide much more academic freedom and cooperation between its outstanding members than any other institution in those days in Russia. For Gurwitsch, who originated from Ukraine, wonderful nature of the Crimean peninsula was also a source of inspiration. The first few years of his work in Taurida University turned out to be extremely fruitful. Then he made his famous “onion experiment”, which opened a door to a miraculous world of biophotonics and electro-magnetic biology, and gave a first sketch of his “embryonic field” theory. It was also amazing how rapidly developed the biophotonic studies in Taurida University and how soon they became known to the worldwide scientific community. The main reason was that not only the professors, but also the students of this University were outstanding. Some of them continued to work in this field for their whole life. To be mentioned among them is a later well-known cytologist, Semen Zalkind, and a biophysicist, Gleb Frank, who

became a member of the Soviet Academy of Sciences and the founder of the main center for biophysical research in the Soviet Union and now in Russia, the Institute of Biophysics in Puschino.

Being eager to revive these glorious traditions, the authorities of the modern Taurida University started the Conference by a ceremony of opening a common Gurwitsch-Frank memorial desk at the main University entrance. The ceremony was preceded by a special University session with Dr. V. Lavrov lecturing about the history of Taurida University in Gurwitsch's times and Prof. V. Voeikov's lecture about Gurwitsch's main works. By a miraculous occasion (nobody arranged it intentionally), this ceremony took place exactly on Alexander Gurwitsch's 130th birthday!

On the same day, an unforgettable enterprise was the excursion to the house where Gurwitsch's lab (and his family flat) was located and where he made his onion experiments. The beautiful villa safely survived the Second World War and was only slightly redesigned. We, the conference participants, made a group photo at almost the same place where the Gurwitsch group was photographed exactly 80 years before (see two photographs on the frontispiece).

The Conference collected several dozen participants from Russia, Ukraine, several European countries, USA, and Israel. Unfortunately, due to traveling problems, several potential participants, including IIB members, could not personally attend the conference. However, they presented the contributions that we included into the volume. Taken together, they give a representative picture of the modern state of biophotonics and the related branches of biology and biophysics.

By the Editors view, the main novel feature of the 3<sup>rd</sup> Gurwitsch Conference, as compared with the previous ones, is the extension of biophotonics from its traditional optical wavelength range toward that including smaller electromagnetic frequencies and stationary fields. In other words, biophotonics becomes a part of a common science that may be called the electromagnetic biology. Such an extension is far from being formal: a main conceptual basis of this new trend of science is to a great extent borrowed from the modern biophotonic studies. This relates most of all to the concept of coherence. It is this concept that permits to explain the biological effects not only of the UV and optical wavelengths range, but also those of much smaller frequencies. The idea of coherent regimes of molecular interactions as well as the related views and experimental findings seem to be of an utmost importance and heuristic power not only for electromagnetic biology *per se*, but also for the cell and organismic physiology.

Although several papers from this volume are treating different matters, some of which are only indirectly linked with biophotonics in *sensu stricto*, we decided not to subdivide the entire volume into different sections. By arranging

the papers, we put in the beginning those completely or partly devoted to the biophoton emission. These were followed by the papers treating electromagnetic fields, and at the end of the volume we put the contributions not related to electromagnetic events but associated with the concept of a coherence in its broader sense, including even sociological and philosophical aspects.

One of the aims of the 3<sup>rd</sup> Alexander Gurwitsch Conference was to emphasize the links between the pioneer Crimean experiments and modern biophotonics. Accordingly, we found it suitable to end the Conference volume by a brief tribute to the person who did more than everybody else for promoting a continuity of this research line – Professor Anna Alexandrovna Gurvich (1909-1993).

Together with all the Conference participants, we express our deep thanks to the Rector of Taurida University, Professor N.V. Bagrov, to the Deputy Rector, Professor V.N. Berzhansky, and to all the members of the Organizing Committee of the 3<sup>rd</sup> Alexander Gurwitsch Conference for their wonderful acceptance at the land of Crimea, making the conference a remarkable scientific and cultural event. Our special gratitude comes to Dr. N.D. Vilenskaya who took on herself the burden to format the whole volume. We thank also Mr. A. Johnson and Mrs. K. Zimmer from Springer for their help in issuing this book.

## REFERENCES

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