

PRESENTATION OF EXHIBITION
FOR THE 4th CONGRESS ON SYMMETRY

E.RAPIS

Title of the exhibition: Protein self-assembly and its folding as seen by a scientist and an artist.

The exhibition is based on the discovery made in the field of non-equilibrium self-assembly of protein film identified with its folding in vivo (Rapis.E. 1988-1998). Materials visually illustrating supermolecular architecture of protein aggregates layering at mezo- and macrolevels appearing during non-linear chaotic process dynamics of protein condensing and self-organization are to be represented on stands. New protein properties have been discovered in this film, namely, structural, magnetic and electric ones. Main phenomenological features have been represented in microphotographs and in pictures painted by an artist from what he saw under the microscope. They consist in the following: a series of geometrically conjugated defects is being formed dividing the gel homogeneous mass into separate blocks or cells (fractals) with the presence of nucleus in each of them. This reflects the process of film nucleation. Spontaneous intermittent, linear (between cells), spiral, chiral symmetry and assymetry is being determined with characteristic fractal structures representing the symmetry of porcupine. Complex system of fractal twisting 3-dimensional films which produce whirls of opposite rotation is being determined. Self-complimentary connections of separate fractal blocks have been found which are finished, as a rule, with sharp, cone-like tops. Films are dichotomically dividing forming tree-like branched structures. Alternation of attraction and relaxation zones are being determined, etc.

It is supposed to present the following materials for the exhibiton: photographs in frames under glass, size 40x60 cm - 5 pictures, photographs size 30x40 cm - 6 or 7.

Artistic representation of microscopic pictures was

made by Mr. Levin, a professional artist, on the canvas - 10 paintings in oil, size 60-80 cm.

3-4 pages of explanation material.

It would be desirable to have the area of 18 m in length and 4 m high - about 70 sq. m of wall.

The desire to present such a big exhibition is explained by the following motifs.

There exists a well-established point of view that protein folding is one of the most important unsolved problems in biology, medicine and science on the whole.

Thus, scientific and practical value of experimental discovery of self-assembled protein cluster film identified with its self-organization (folding in vivo) with non-linear chaotic dynamics is becoming clear.

However, even today we would like to say that such an experimental model of protein folding, where its nature is represented with unbelievable completeness and beauty without any efforts and expenditures of the researcher, needs to get the soonest and widest distribution. As it can be especially useful not only for detailed studying of protein folding mechanism, but also for introduction and distribution of the self-organization theory itself because it becomes available not only for scientists but for schoolchildren as well. And what is most important is that this folding model permits to make a real search for control in energy of the living.

The present exhibition is to fulfill these goals.

Afterword: I would like to note that in the experimental model obtained for protein folding the nature is presenting its secrets to the science with unexpected generosity, and we are to hope that the science is to take it without delay and with thanks. And it is hoped that it would overcome the barrier of distrust to the new even sooner than usually.

