Ladies and Gentlemen:

It is not possible for me to travel to Antalya and speak to you in person because the infirmity of old age does not permit me to.

I was greatly surprised to hear that your Academy is going to honor me by bestowing its Gold Medal on me for my life work. This is a weighty matter for me because it is the first time that my endeavour to transfer structural knowledge and insight across the borders of various disciplines is explicitly acknowledged - a concern which I tried to promote in many of my talks and lectures over the years.

In what follows I will describe some of the less well-known features of my work. The graphical representation of structural knowledge which is now in widespread use - I invented it in a playful mood in August 1939, and practised it intensively for the purpose of memorizing chemical processes, using circles for substances and squares for reactions, interconnected by arrows to denote IN and OUT.

In my dissertation on "Communication with Automata", introducing the theory of such Nets in the context of Informatics, I did not mention my plaything. I did not want the theory to appear as a "graphical method" instead of a mathematical attack on the then prevailing Automata Theory, based on arguments taken from modern Physics. Only some years later, I was bold enough to propose Net Graphics as one of the standard features, and they were greatly welcomed. Today, Net Graphics has become an important tool for knowledge transfer between disciplines, as they are quickly understood by professionals not versed in Algebra.

Net Graphics are readily translated into an algebraic form which can be treated easily by computer programs to uncover deep mathematical properties hidden in the Graphics. These procedures rest on a small but utterly simple set of twelve axioms. Four of these are devoted to the Definition of Nets, four to the description of Basic Processes, two to the introduction of Higher Level Concepts, and two to the access to any number of Higher Dimensions. In selecting the axioms, I had the ambition to devise the simplest complete Systems Theory imaginable.

The numerous Dualities which are so important in applications arise from the symmetries visible in the axioms, except the Duality between Dynamic Systems and Static Systems. Dynamic systems use "possible" transitions; static systems use "impossible" transitions. A most general static system is a net of propositions and proofs. For the rest, we have mainly the formal S-T duality, the 0-1 duality in basic nets, and the forward- backward duality.

To my many excellent helpers, I have to confer a due part of the honor which I receive today. They have shown a deep understanding of my aims and principles, and have supported and defended my work also in most difficult stages and situations. Yet, I do not consider my work as finished; early this year, I got up and took down the main results which I achieved in close cooperation with Konrad Zuse, the inventor and constructor of the first programmable computer - results which have not yet arrived in systems sciences:

First, Heisenberg's Uncertainty Principle can be given a combinatorial form immediately applicable to Observation. In this form, it is embodied in the Process Axioms of Net Theory.

Second, the mathematical properties of the Continuum ("connected" and "compact") are possessed by all Connected Finite Nets - just those which are of practical interest.

Greatly moved and in deep gratitude to
the Academy of Transdisciplinary Learning and Advanced Studies
I accept this signal honor of its Gold Medal.

Carl Adam Petri