

## Prologue

While still a high-school pupil, I became strongly interested in information transfer among organisms that was not based on vision, sound, or any material component. Yet, studying biology there were no lectures satisfying this primary interest of mine but what I learned was, nonetheless wonderful. After graduation and leaving university, I thought that biology basically describes random collisions of material components while phenomena like field forces, entanglement or synchronicity (sensu Pauli and Jung) are ignored. I felt an urge to find out more and picked up my academic education again in the field of evolutionary biology focusing at that time during a PhD and later a post-doc on parasites and the ecology of their transmission. During that period of my academic education I came across studies about photons emitted by cells (but differently from bioluminescence) in very low numbers and by all types of cells. These works made me increasingly aware of the electrodynamic world of the cell being much more than photosynthesis, membrane potentials or electrostatics of protein folding. Cells are filled with electrodynamic fields that exist because of charged molecules, ions and chemical reactions, all of which move through the confined space of a cell. Fields interact with charged particles and consequently the endogenous electrodynamic fields of the cell are assumed to play a significant role in organizing cell processes and form.

We believe that the exploration of the fields of the cell will inevitably change our understanding of life processes. We learn about a combination of a reductionist's "from genotype to phenotype" (bottom-up principle) view with a "from field to form" (top-down principle) view where thinking of cause and effect will still make sense but where rather watching the process as such – the reciprocal causality between matter and field – will be the core.

The following collection of papers on electrodynamic fields and biological processes is intended as a small step in the direction of forming an integrated view of biological cells.

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Basel, February 2, 2015