

# e k p evolutionary knowledge project

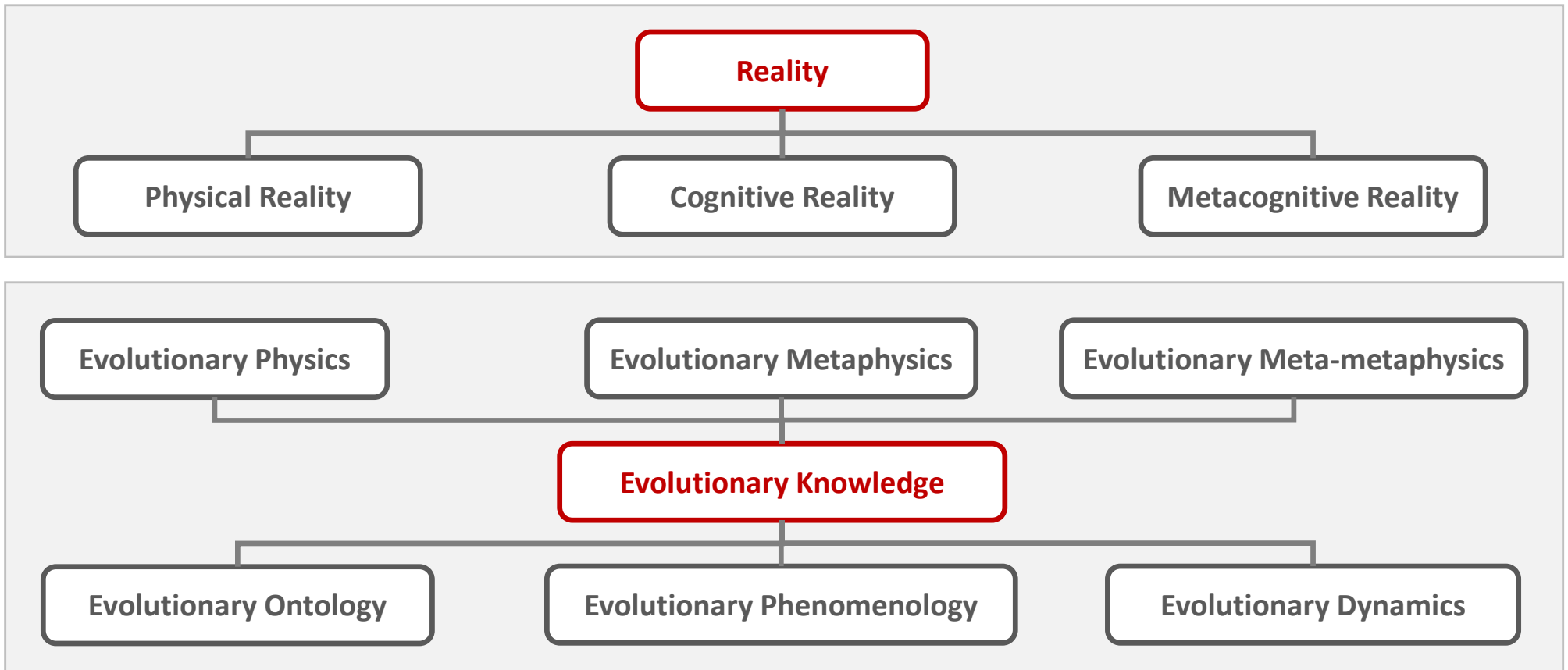
## An Overview

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November 2020

## A new vision of Reality and the Universe

evKnowledge is a **research project** born from the desire to construct a **new system of knowledge**, for a wider and deeper understanding of Reality and the Universe in evolution. A cultural initiative that promotes the research and the spreading of **Evolutionary Knowledge**.



**WHY**



Physics and Cosmology are facing **a great crisis that is undermining their foundations**. The difficulty of integrating General Relativity and Quantum Mechanics, together with the impossibility of understanding the dark side of the cosmos, question the entire scientific system. Consolidated theories, the building blocks of our current knowledge of Nature, seem increasingly to feel the fatigue of a continuous adaptation to new **observations and experiments that do not always give us the expected results**.

**WHAT**

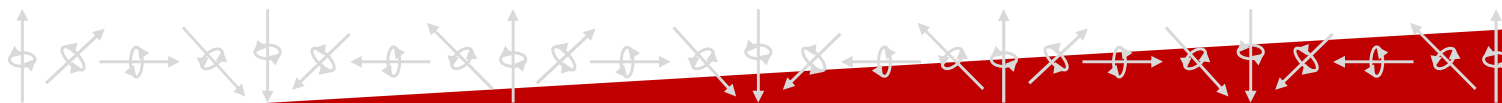


This Project wants to contribute **ideas, proposals, hypotheses** to overcome the current crisis of physics and cosmology, and more generally to expand and deepen the knowledge of Reality and the evolving Universe. From the study of physics and cosmology to the study of Reality in all its manifestations. A common language, universal principles, a unitary framework adaptable to all fields of study.

**HOW**



**The construction of a new System of Knowledge**, a new framework to host and unify all the wonderful contributions of modern science as well as the ancient and traditional knowledge. A theoretical development laboratory, where new concepts and schemes stand side by side with consolidated theories, in an attempt to correct their limits, to expand their ability to describe and explain Reality in all its multiple phenomenological forms.



**PROBLEMS**



Problems are the fuel of science. But, when the theoretical solutions laboriously elaborated to solve the emerging problems generate even greater problems in their turn, and the ability to describe and explain the observations progressively decreases, **it is necessary to rethink the whole scientific system**, broaden the vision, restart from the phenomena and seek new ways to understand Reality on a deeper level.

**PHYSICS**



Physics is facing **big problems at various levels**: to conciliate General Relativity and Quantum Mechanics, to find a new and consistent principle of Reality, due to the weirdness of Q.M., beyond its different interpretations and the difficulties to really understand the dynamics of quantum objects, to find a meaning and to understand the true nature of the main physical quantities (mass, charge, spin, etc.), to complete the standard model of particles, etc...

**COSMOLOGY**



New observations bring us **new facts that are outside the established theories** about the shape, structure and evolution of the Universe. The standard models cannot explain the main part of the Universe, the dark side of the cosmos. Galaxies and clusters already well formed in the early ages, an emerging diffuse anisotropy, an expansion that no longer seems homogeneous and innate to the same space-time ...



We need to **go beyond the known**, the accepted, the acceptable, the today thinkable.

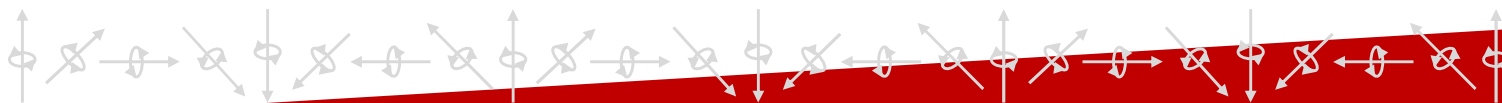
**New eyes, new experiments, new ideas, new concepts** and new relations among them.

We need **the courage to abandon our current vision** of physical reality. We need to go further, to look at reality from different perspectives, to abandon certainties that strongly limit our possibilities to let emerge a new vision of Nature.



We need to **revise, without prejudice, the fundamentals of the current theories**, their same pillars, that affect our vision of the whole and the relations between the parts of our current fragmented knowledge.

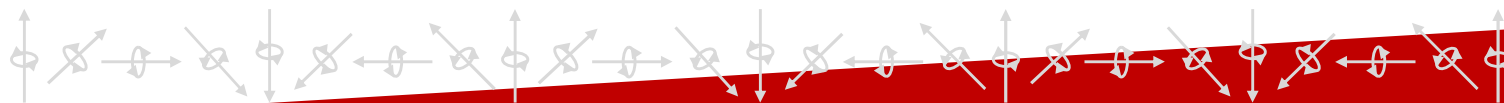
And to **reconsider some other theories**, putting them in a wider framework, enhancing their compatibility and descriptive power, to reach and reveal the elementary level unity that underlies the multiplicity of the phenomenological reality we directly make experience. Among all: the matter centric vision (atomism), the non-locality hypothesis, the theory of big bang and inflation, the conception of space time and the constancy of the speed of light as in General Relativity, the concept of unknowability of reality as in Quantum Mechanics.



Among the infinite questions that fill the minds of physicists and cosmologist, **some fundamental are at the very center of the research** for a wider and deeper understanding of the nature and dynamics of Reality:

- What is the nature of **Reality** and the **Universe** themselves?
- What is **Reality**?
- **What exists**?
- How is Reality **forming**?
  
- What is really **fundamental**?
- What are **sources, forces and fields**?
- What are **events, action and energy**?
- What is **information and evolution**, in the physical domain of Reality?
  
- What is **space-time**?
- What are **mass, motion, charge and spin**?
- How can we describe them in terms of the **fundamental processes** that incessantly form Reality?
- What the **real nature of waves and particles** and their mutual relations that paint Reality of weirdness?
- What about the strange and puzzling relation between **continuity and granularity**?
  
- What is the **Universe**?
- What is the Universe **made of**?
- What is **matter**, both the **dark** and the **ordinary**?
- Why exists **something** rather than nothing?
- What **cosmic expansion** and **dark energy**?

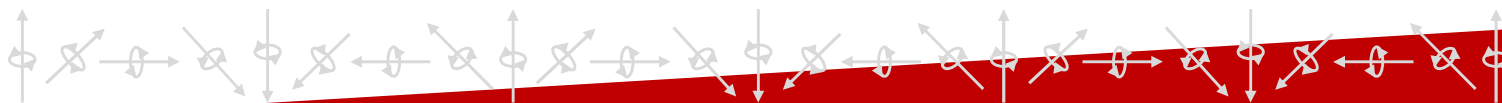
And more and more... Up to the most distant frontiers of knowledge...



Here are some **key points** of this approach to the study of Nature. These are **starting points** on which to reflect and direct the future theoretical and experimental research:

- Reality and the Universe “does not exist” in a conventional sense, **the whole Reality “happens”**
- **Space and Time are not entities**, they are phenomena, they happen
- A Reality without a beginning and without end: **no limits at all**
- Reality is incessantly propelled **by a Source (a Force / Field couple) of Events / Action**
- **Creation  $\neq$  "and" Evolution**: the two sides of the Formation of Reality
- The Fundamental Principles are **Uncertainty, Action and Reaction, Least Action**
- Mass, Motion, Charge and Spin: the key is **(cor)relation, organization, information**
- The speed of light is **a limit, not a constant** (as we normally intend it)
- **Particles** are not the main part of what exists and forms Nature
- The shape of particles and atoms is **different from what we think and ever changing**
- **No Big Bang! No inflation!** We don't really need these things...
- The Universe **is older, larger and more complex** than we think
- The **dark side** is more relevant for the structure of the Universe than the visible one
- Dark matter **is not made of particles**
- Dark energy as **anti-mass** (or positive mass density)

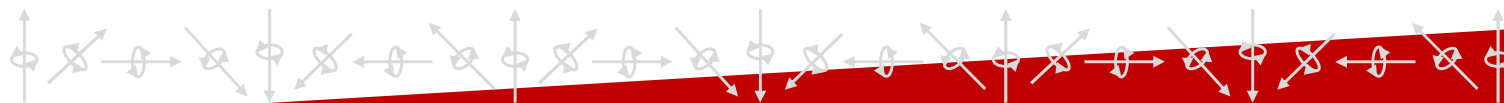
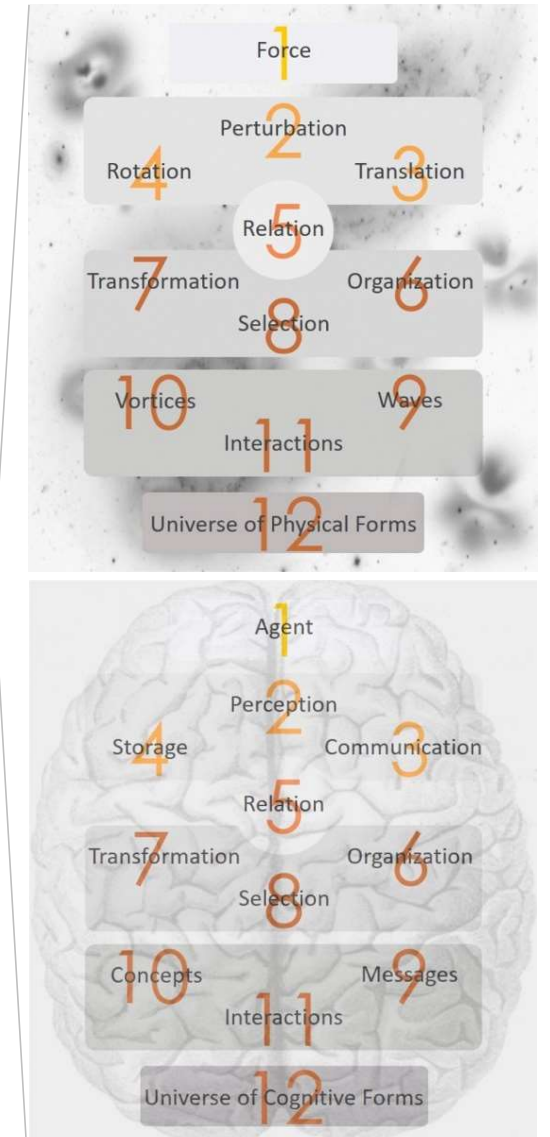
Among the main aspects of this model of description of Reality we point out the **Process of Formation of Reality** and the **Evolutionary Cosmological Model**.



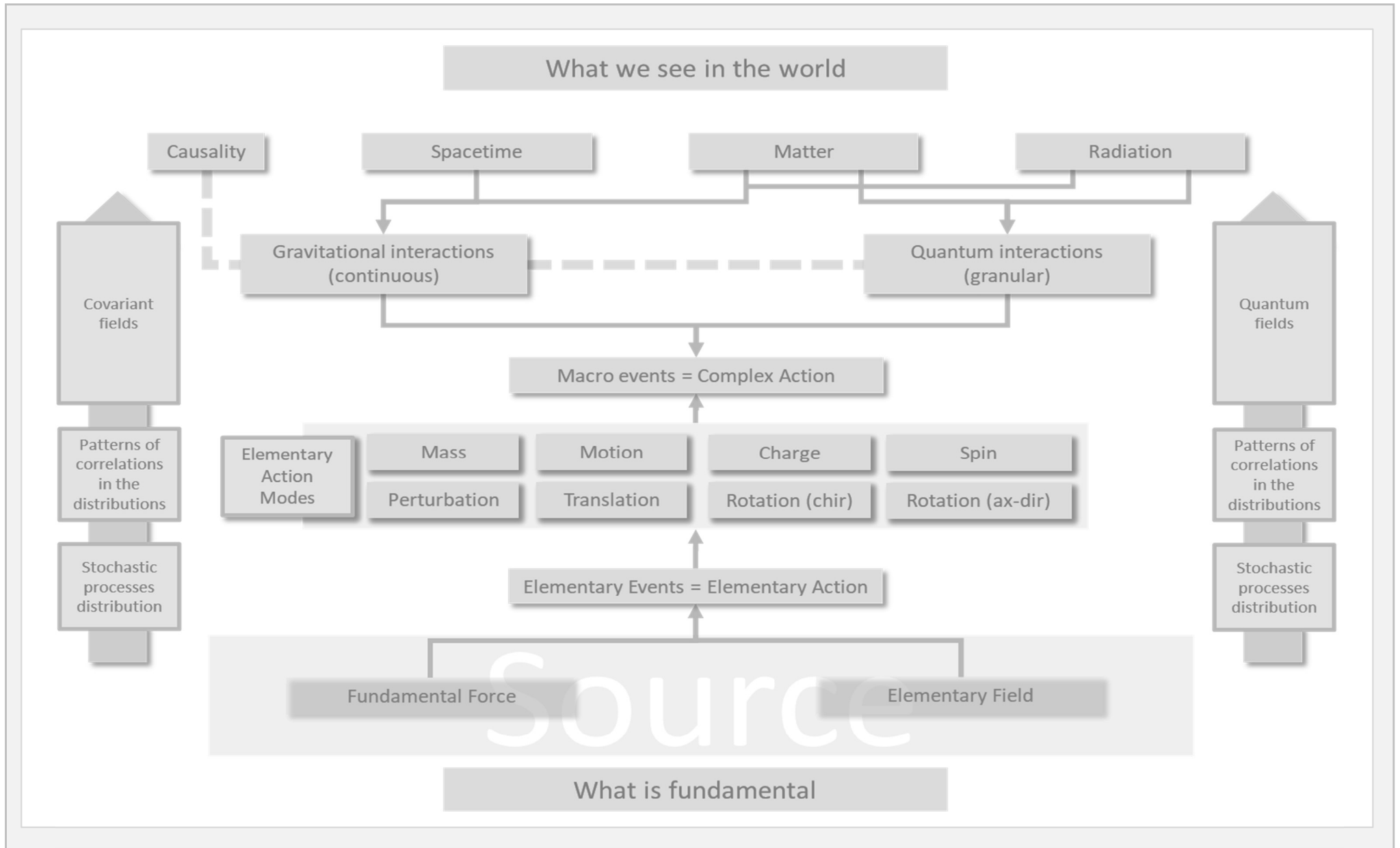


The Formation of Reality is the **unitary Process** through which Reality takes incessantly form and the Universe in evolution manifests itself.

It includes everything, all the fundamental and the derived **Entities**, all the functional operators that cooperate and compete toward the **Creation and Evolution** of Reality, all the elementary and the complex **Events**, all the **Relations** among events, all the physical and the cognitive **Information**, **Structures** and **Forms** that compose the Universe in evolution.



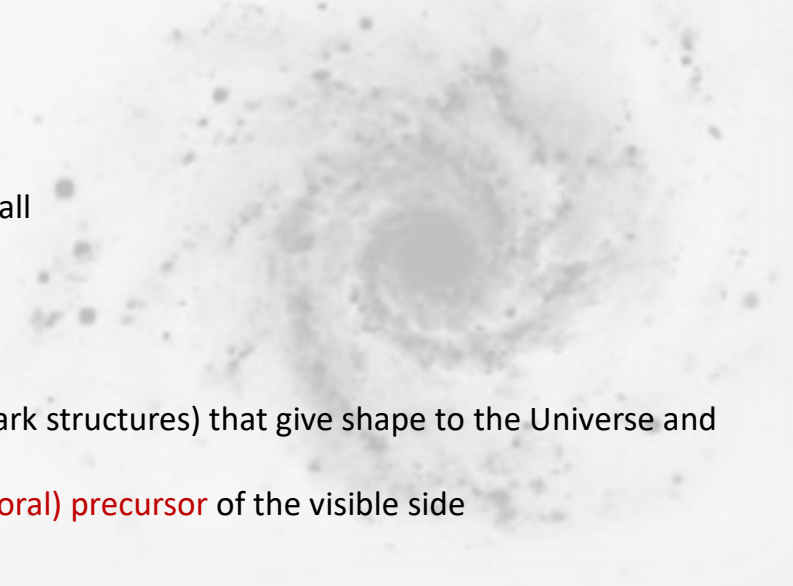




In this model, **we can "easily" accommodate phenomena like** the expansion of the cosmos and its acceleration in time (whatever they represent), the inconstancy of Hubble's Constant in space, as well as in time, the strange super homogeneity of CMB, the existence of well-formed cosmic structures in the early Universe, just a few hundred millions years from the supposed birth date of the Universe. And it is not enough. **There are rooms for** a dark matter not made of particles, that does not need to reject or modify gravity, and the strange stuff we call dark energy, theoretically required to account for the acceleration of the cosmic expansion.

The **milestones** of the Evolutionary Cosmological Model are the following...

- The Universe is the section of Reality we call **the present**
- The Universe is **older, larger and more complex than we think**
- The Universe is **unlimited**: no limits in cause, space and time. No limits at all
- **Only one Universe is needed**, not many or an infinite number
- The Universe as a whole is **inherently flat**
- **No singularities**: neither in the case of the Big Bang, nor in Black Holes
- At the largest scales, **the cosmos is substantially homogeneous**
- **Inhomogeneity and anisotropies "are" the cosmic structures** (especially dark structures) that give shape to the Universe and determine its evolution
- The dark side of the Universe is a **causal and variational (spatial and temporal) precursor** of the visible side
- Dark matter is **not made of particles**
- Dark energy as **anti-mass** (or positive mass density)
- **Mass can be positive and negative** (dark/ordinary matter + dark energy create an attraction / repulsion gravitational cosmic dance)
- Ordinary matter (and antimatter) forms from **the dynamics of dark matter/dark energy structures** (galaxies and clusters/super clusters dark halos)
- The cosmos has **a gravitational, kinetic, electric and magnetic structure** (hardly visible, if not completely invisible)
- The Cosmic Web is the **3D structure of the Universe**
- Cosmic expansion as an effect of **the rising complexity of Reality**
- The Hubble constant is **not constant**, neither in space nor in time

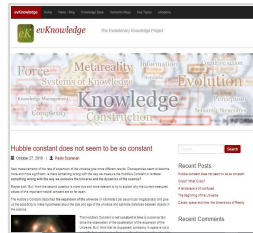


**Web site**



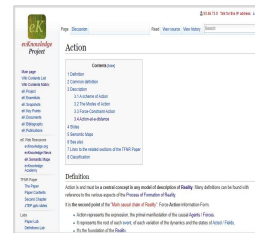
www.evknowledge.org  
- The portal to access all the web resources of the evKnowledge project.

**News-Blog**



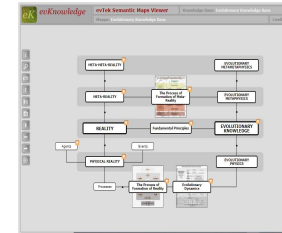
News, editorials, updates on research activities, presentations, documents, videos and more...

**Evolutionary Knowledge Base**



A web resource that collects information, documents, diagrams, images about Evolutionary Knowledge. More than a hundred pages organized in a Mediawiki implementation.

**Semantic Maps**



A visual access to organized sets of topics (nodes) and relations (links) that compose networks, in a systems of knowledge. Visually navigate in the knowledge base.

**TFNR Paper**



An introductory paper on that part of Evolutionary Knowledge that we call Evolutionary Physics.

