

Spotlight on

The *current* Dark Age in Science

Michelangelo Altamore.
March 24th, 2025. Catania, Italy

...or if you like...

why Physics is still stuck in 1930s



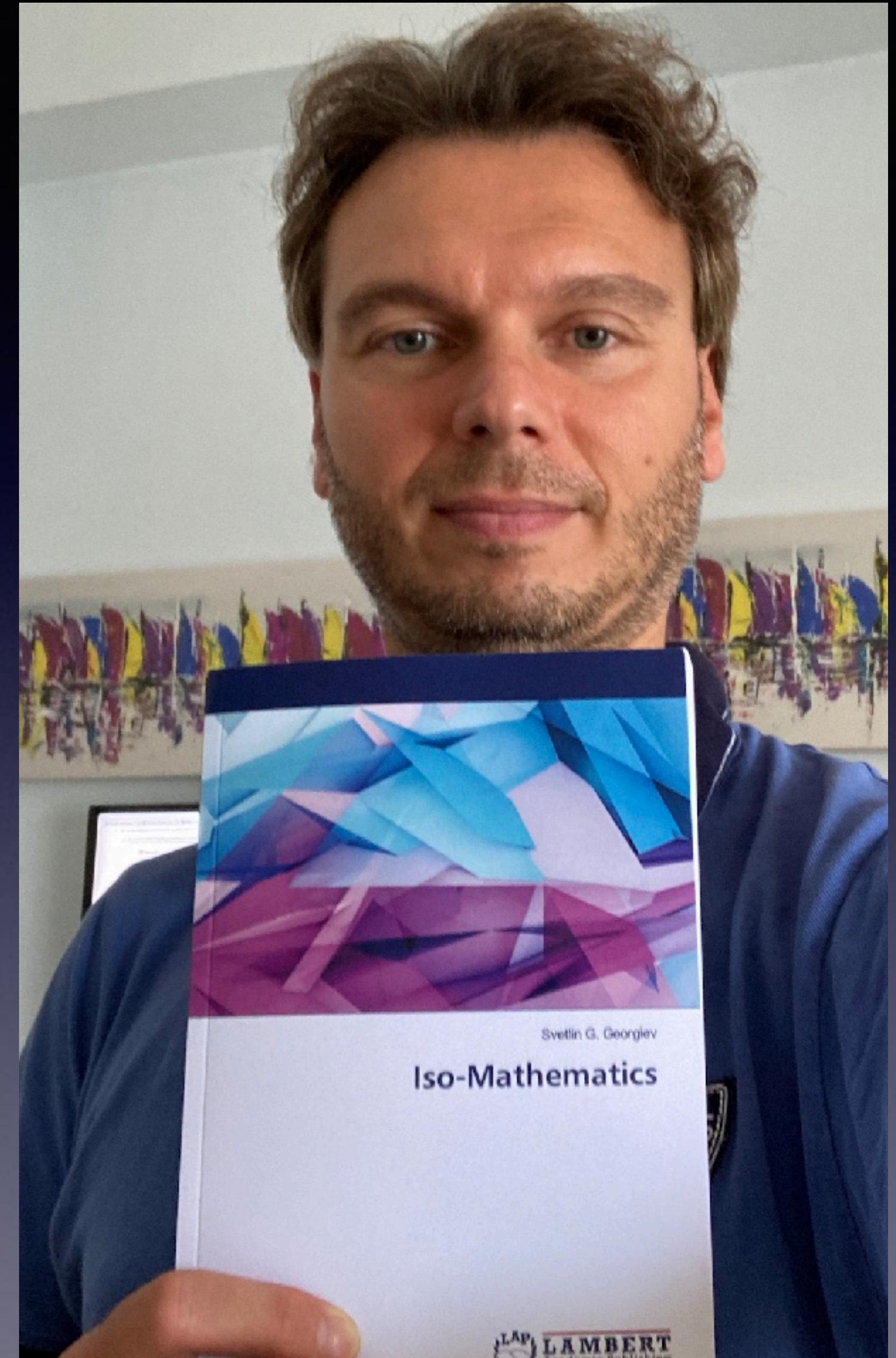
*...and 2015 **was not** like* 

Images from “Back to the Future II”, copyright by Universal Pictures

Who am I

Michelangelo Altamore

I hold a degree in Computer Science and a personal interest in Physics, while earning my living working as a Software Developer.



Disclaimer

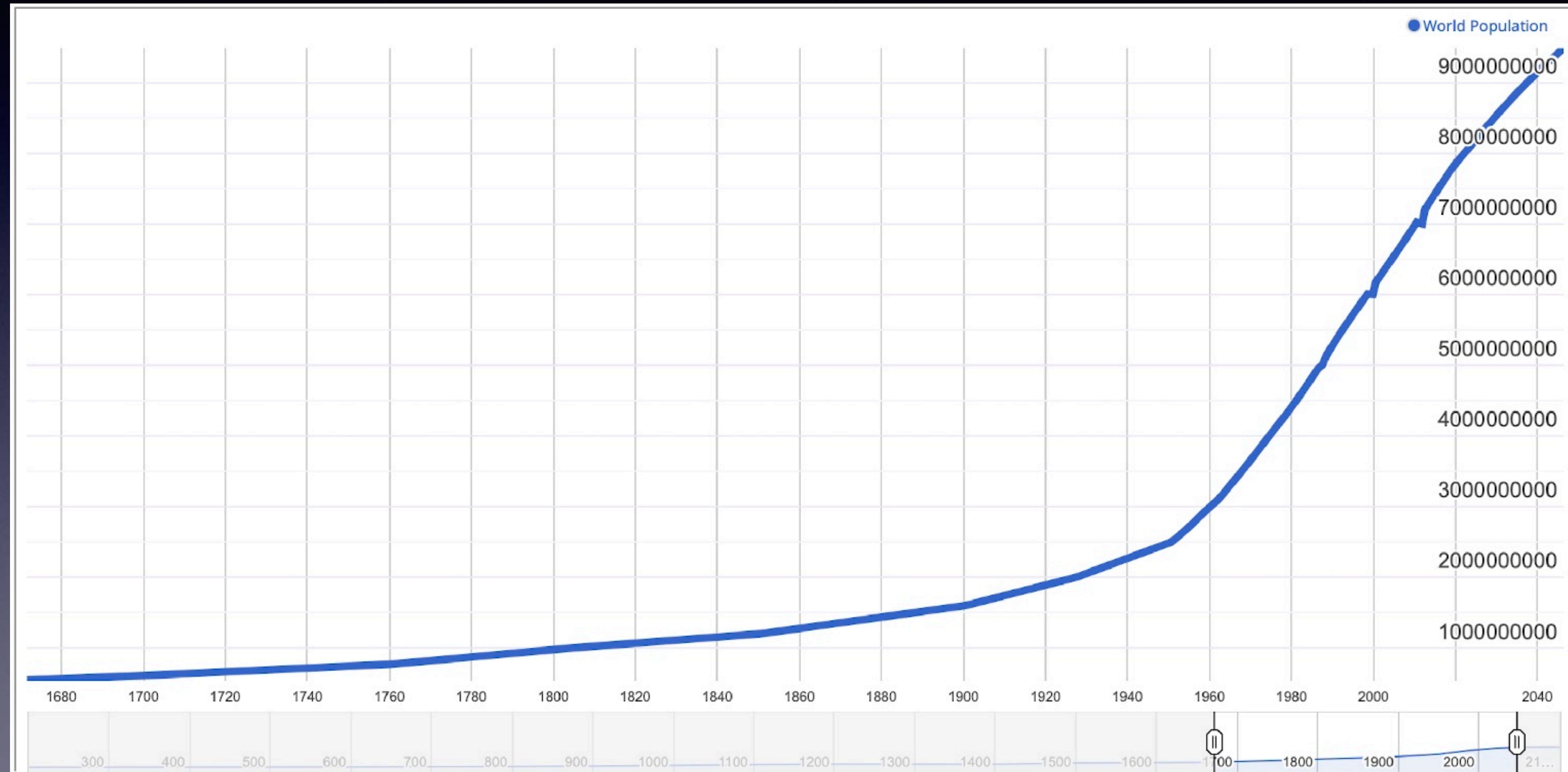
- During this talk and by these slides, I only express my *personal opinions*.
- I am *not* payed nor have any financial interest involved, plus ... *I may be wrong.* 😊
- I did not build any bibliography ... but *most of them* are *included in cited works*.

Please make *your own* critical thinking and *independent verification* before trusting what I say.

Mankind

An ... *uncomfortable* fact...

Mankind ~ 8.5e9 *



The Trend: toward 9 billions

8.5e9 * 

Mankind vs Planet Earth



Fossil fuel combustion:

- CO₂ emission
- “Green house” effect
- Global warming

Waste:

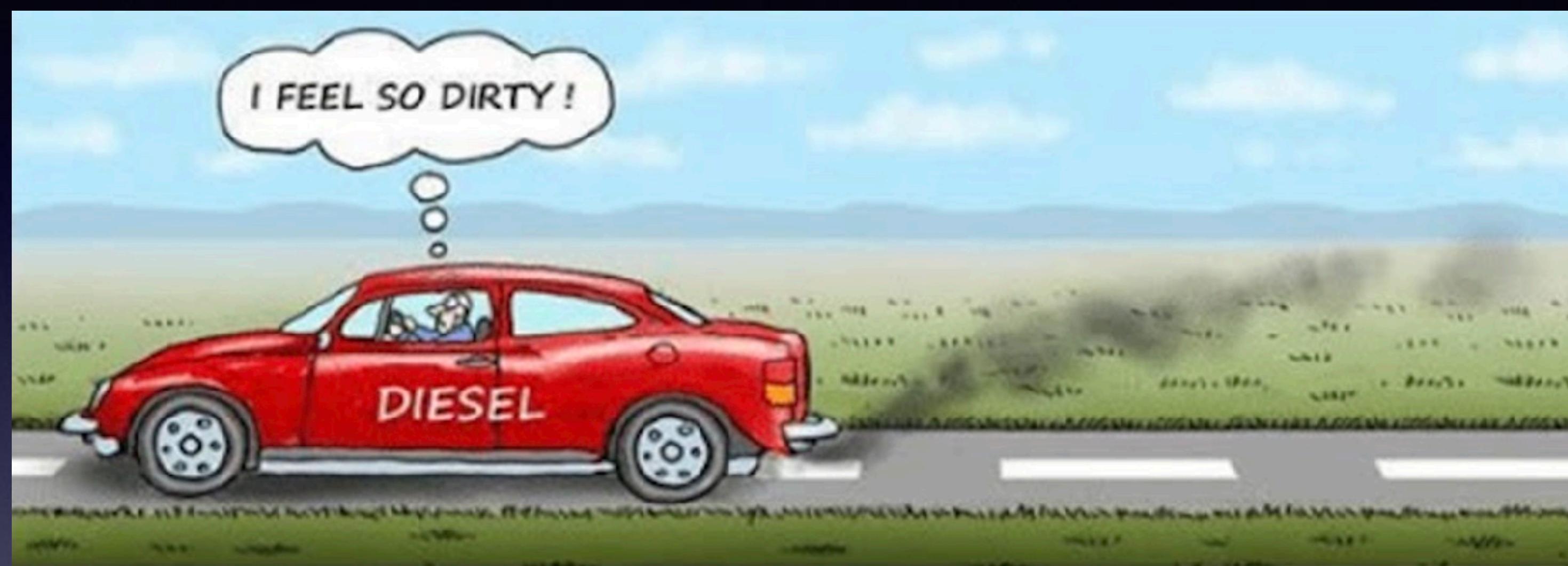
- Civil / Industrial
- Nuclear
- Chemical / Toxic



Posturing solutions

- Electrify consumer transport
- Alternative energy sources
- Certify “Green” industries
- Sponsor “Sustainable Industry”

Canting solutions



An outstanding question for
an outstanding problem

What if...

An outstanding question for an outstanding problem

...human population driven CO₂ emission were
simply (*one of*) consequences of
insufficient sciences
granted as the definitive ones?

“[...] the protracted lack of resolution of fundamental problems in science signals the needs of basically new mathematics.”

—Sir Professor Ruggero Maria Santilli



A step back...

φιλοσοφία, *philosophía*,
φιλεῖν (*phileîn*) and σοφία (*sophía*):
love for knowledge...



Love for Knowledge

...of the Nature of Phenomena

για τὰ φυσικά (tà physiká)
των φαινόμενον (fainòmenon)

How to get Knowledge of Nature?

We think Nature behaves according to some “*laws*”:

- expressed by some *hypothetical axioms*;
- modelled by some *physical conceptual abstraction*;
- *represented* by a *human devised tool* we call “math”;
- *limited* under an *applicability scope*.

(Scientific) Truth will set you free

Galilean's experimental method:
intuition, demonstration, and experiment.

Guarantees human progress by
scientific knowledge, transitioning
from false assumptions/
superstitions/beliefs/etc...
to ***applied scientific realisation.***



What a Physics scientist is good for?

*Extract applicable Physical
Laws from Nature!*

What a Physics scientist is good for?

Define an *axiomatic theory* (A), using a *conceptual physical abstraction* (B), under its *limitations of applicability* (C), formally *expressed* by some *math tools* (D)

A B C D

A Scientist case: Newton

- Axiomatic theory: **laws of motion**
- Conceptual physical abstraction: **extended physical masses assimilated to point-like particles interacting at a far distance**
- Tool to represent the physical phenomenon: **differential calculus**
- **Universal Gravitation law:** $F = G \frac{m_1 m_2}{r^2}$





A Scientist case: Newton

- *Axiomatic structure*: the celebrated **three laws of motion**
- *Conceptual physical abstraction*: **extended physical masses** assimilated to **point-like particles** interacting at **a far distance**
- *Tool*: introduced **differential calculus**, crucial for **representation** and **quantitative** measures —***not previously existing***.
- *Law and its applicability*: **Universal** Gravitation law
Verified (experimentally measured) through accurate predictions.

A Scientist case: Einstein

Special Relativity “covering” Galilei's relativity

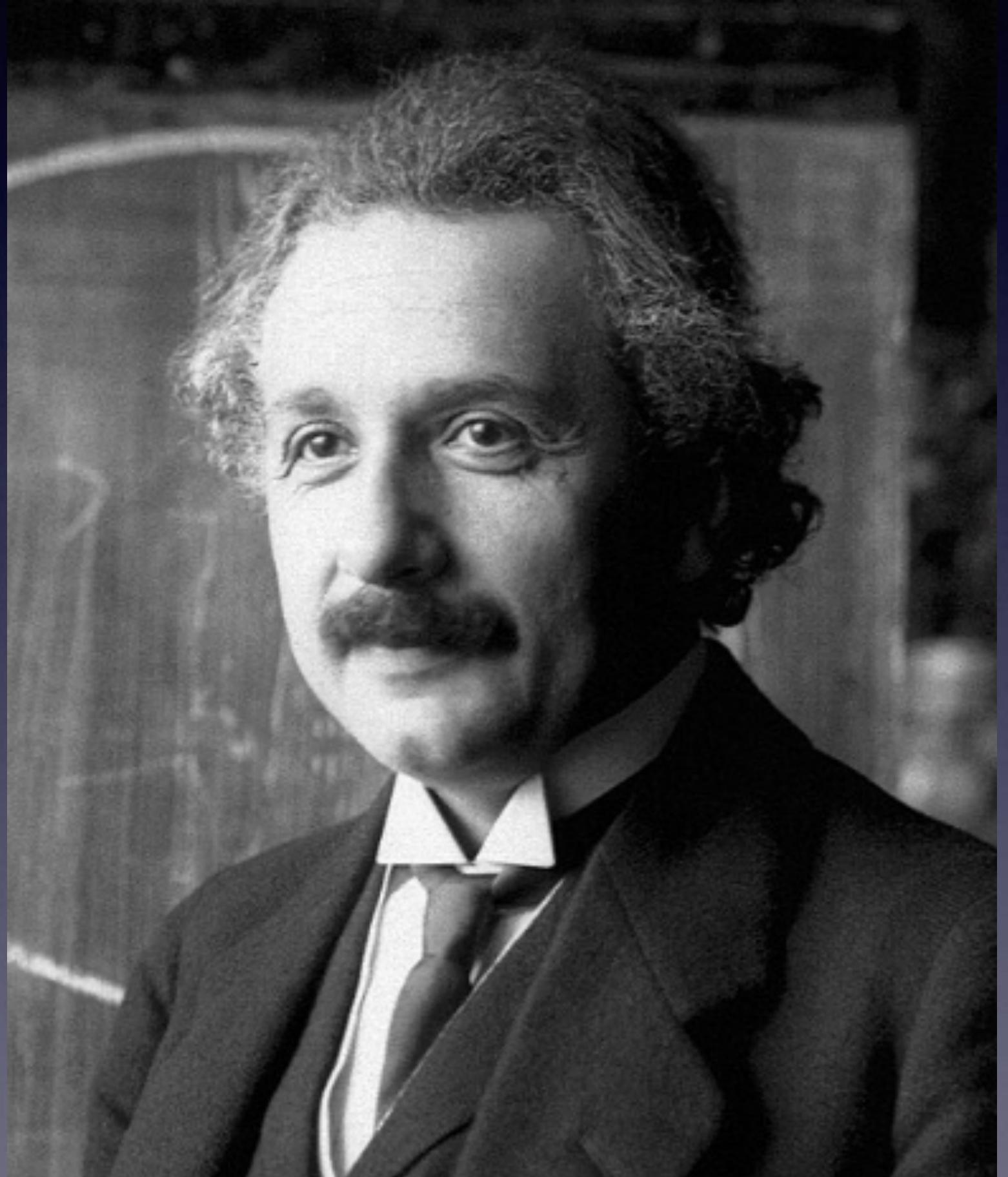
Axioms:

1. The laws of physics are *invariant* (identical) in all *inertial frames of reference* (that is, frames of reference with no acceleration).

This is known as the *principle of relativity*.

2. The *speed of light in vacuum* is the same for all observers, regardless of the motion of light source or observer.

This is known as the principle of *light constancy*, or the *principle of light speed invariance*.





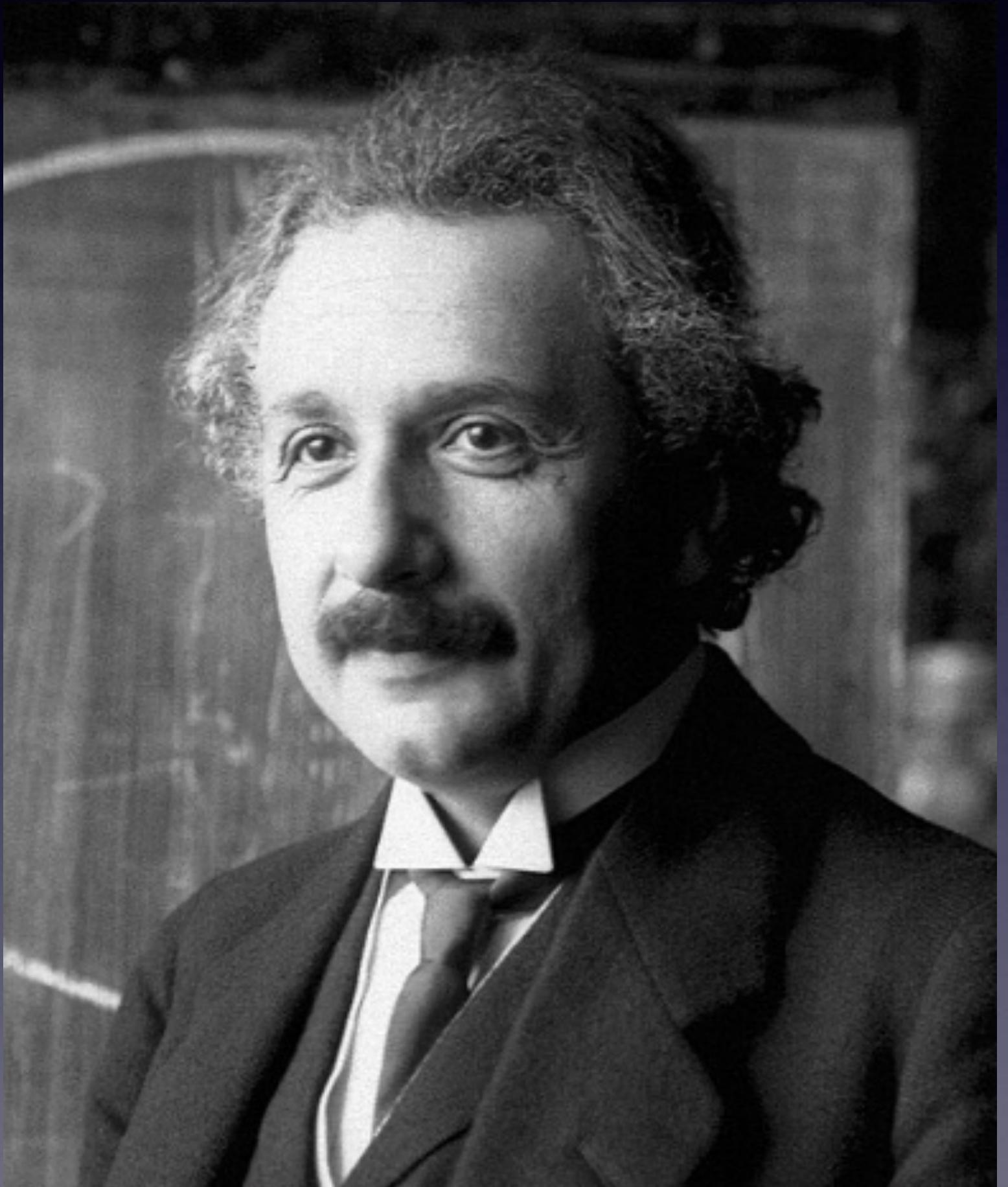
A Scientist case: Einstein

Special Relativity (*Lorentz-Poincaré*)

Conceptual physical abstraction:
Same as Newton's.

Tool to represent the physical phenomenon:
Same as Newton's.

Applicability:
Whenever m travels at speed comparable to c .





A Scientist case: Einstein

General Relativity $E = mc^2$

Axioms:

Same as in Special Relativity.

Conceptual physical abstraction:

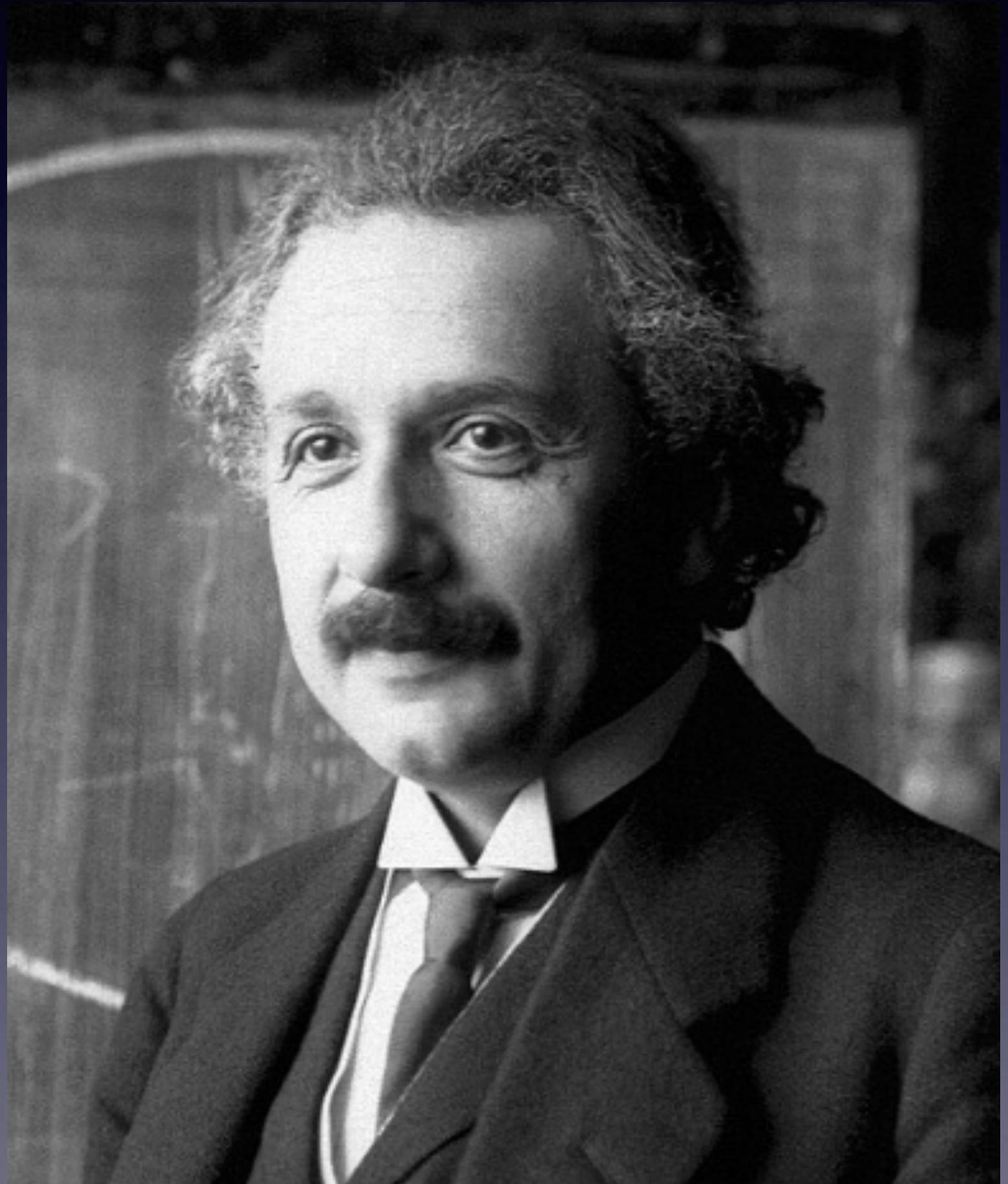
Same as Newton's.

Tool to represent the physical phenomenon:

Same as Newton's.

Applicability/Experimental verification:

Same as in Special Relativity's one
i.e. **some but not all!**



Applicability ...once more...

Einstein's *special relativity* is ***incontrovertibly*** valid for systems of particles ***verifying*** the following conditions:

- The particles can be *well approximated as being point-like.*
- The particles move *in empty space* assumed as *homogeneous* and *isotropic*.
- *Gravitational* and *quantum mechanical effects* are *negligible*.

*...but that is **not** covering all cases!*

Einstein's *special relativity* is **incontrovertibly** valid for systems of particles **verifying** the following conditions:

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- *Gravitational* and *quantum mechanical effects* are negligible.



Extent for Einstein's relativity

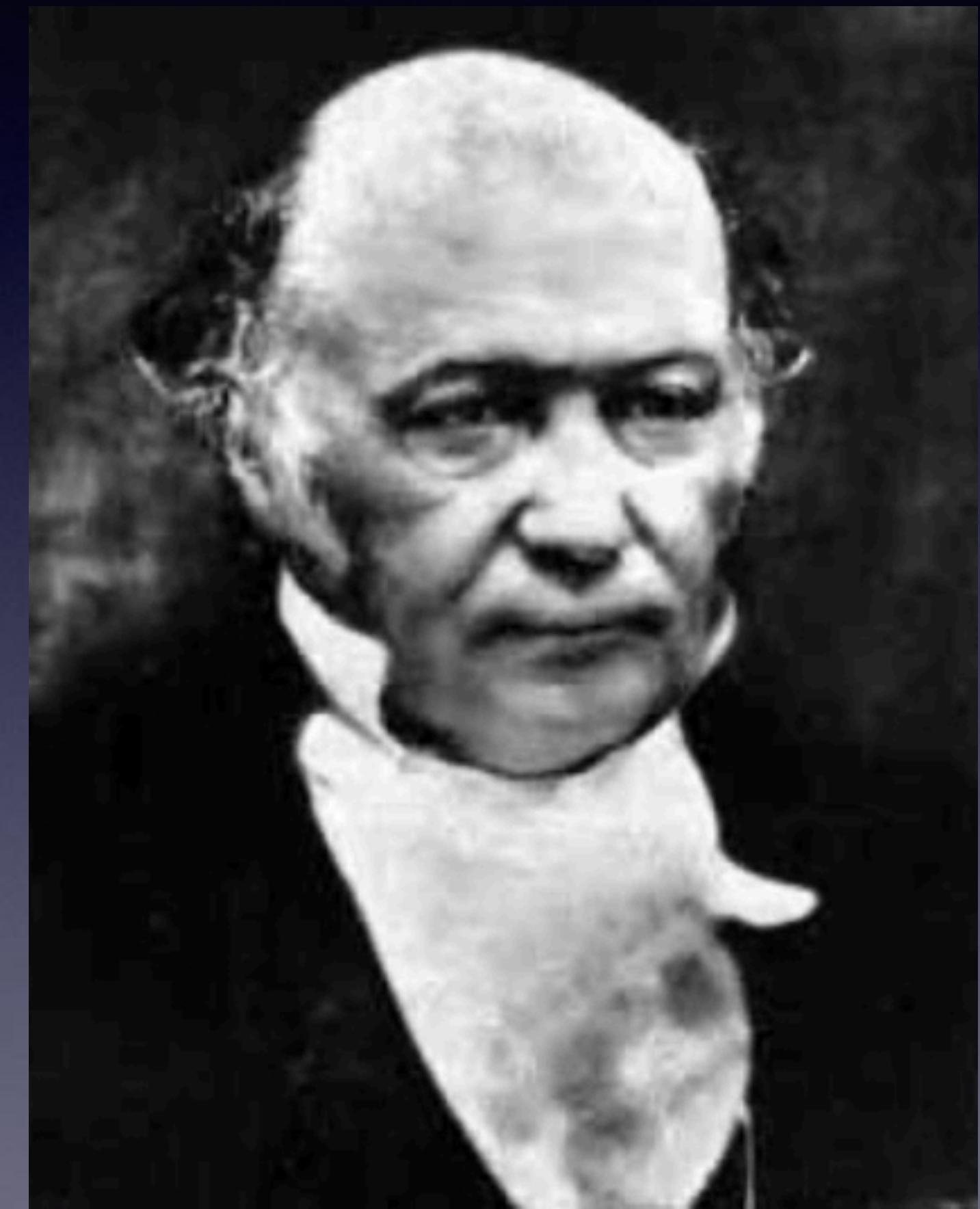
Applicability scopes:
some but not all!

...a feeble light from the past...



Joseph-Louis Lagrange

*the Giants
shoulders'
legacy*



William Rowan Hamilton

The first *Analytic representation of Nature...*



Joseph-Louis Lagrange

Lagrange's original conception of his celebrated *analytic representation of nature* (dating to 1788) required the sum of *two* quantities:

The Lagrangian: $L(r, v) = K(v) - V(r)$
where r are coordinates, $v = dr/dt$ is velocity,
 $K(v) = mv^2/2$ is the kinetic energy and $V(r)$ represents
all *action-at-a-distance forces derivable from a potential.*

+

The “External Terms”: $F(t, r, v)$
that is, terms external to his analytic equations representing
all forces **not** derivable from a potential or a Lagrangian.

...his modern formulation...

In 1834 W. R. Hamilton characterised his *analytic representation of nature* by a function — today known as *the Hamiltonian*, having essentially the same conception originated by Lagrange, and represents the *total energy in a space* (nowadays called *cotangent bundle*) with local coordinates \mathbf{r} and, $\mathbf{p} = m\mathbf{v}$

$$H(\mathbf{r}, \mathbf{p}) = K(\mathbf{p}) + V(\mathbf{r}) = \frac{\mathbf{p}^2}{2m} + V(\mathbf{r})$$
$$\quad +$$
$$\frac{d\mathbf{r}}{dt} = \frac{\partial H(\mathbf{r}, \mathbf{p})}{\partial \mathbf{p}} \quad \frac{d\mathbf{p}}{dt} = -\frac{\partial H(\mathbf{r}, \mathbf{p})}{\partial \mathbf{r}} + F(t, \mathbf{r}, \mathbf{p}, \dots)$$

his celebrated analytic equations, those with ***External Terms*** representing *forces non-derivable from a potential*, hereon called "*non-Hamiltonian forces*"



William Rowan Hamilton

...and modern bangs 



Einstein's $E = mc^2$

What was **the worst** aftermath of $E = mc^2$?



In *your* opinion?

What was **the worst** aftermath of $E = mc^2$?



...I don't think it was ...the *atomic bomb*

“The Einstein’s doctrine followers”

For **me** the answer is 



 **Comfort**
 **Money**
 **Power**

...in the end the most abominable and substantial consequence of the evocative Energy Mass Equivalence coming from Einstein's theories...



Comfort

Einstein's doctrine followers
*were so pleased by Einstein's theories
that considered such theories valid
under whatever conditions exist in the universe (!)*

to such an extent that the universe has been often
adapted to verify special relativity physics! (!!)

(Galileo crying)



Comfort

Along the way, they found that ***External Terms*** were somewhat *unpleasant* for their ***preferred theories***, since:

- for *technical reasons* they cannot be treated by any algebra,
—known to them... 😊
- ***External Terms*** represent *non-linear, non-local, non-Hamiltonian forces* being *intrinsically not* compatible with *Einstein's doctrine applicability*.

Einstein's followers truncated External Terms!!!



Money

*Einstein's followers historically got **huge funds** from **taxpayer's money** to be spent on research projects **crucially dependent** on the **exact validity** on Einstein's relativity.*

\$\$\$\$ Money

Such **huge amount** of money
*played an **important** role to*
build a network of “*solid*”
relationships within ***organised***
academic-governmental **interests**
on **established doctrines**, hereon
Academia (research-complex)





Power

*Once grasped leadership
of Academia,
they implemented
a closed self-referential circle
to support and maintain
such non-scientific stance!!!*



Power

The posture of *dishonest academic barons* in face of the *limitations* of Einstein's special relativity equations to protect *vested* academic/financial/ethnic *interests* is nowadays *blatant* to the *attentive observer.*

Academia **censored** *External Terms!!!*



just because they were ***not compatible*** with
Einstein's doctrine followers ***preferred theories***.
*Isn't that ***intellectual violence***? Or what?*

*What about mandated scientific ethics and ***accountability***?
What would Einstein say about that ***if he were alive***?*

Einstein's followers Vs the Original one

Albert Einstein has reached a **towering stature** in history, not only because of his *physical intuitions*, but also because of his **scientific** and **human integrity**.

Such an **integrity** permeates **from his writings** to this day in a number of ways, beginning with the identification of the **limits of applicability** of the theories he considered, and then passing to a **critical self-examination of the results**.

By comparison, most of the **contemporary papers and books** in physics **lack** even the *intention of implementing this ethical process*, let alone its **scientific process** realisation.

Some of Academia's **orthodox** Physics

- **Atom Physics:** *Quantum Mechanics* **claimed** to be ***exact*** for all **heavier atoms** regardless its inability to **represent all data** in an ***exact way***.
- **Nuclear Physics:** *QM* **claimed** to represent ***exactly total nuclear magnetic moments*** regardless numerous, clear, incontrovertible and independent insufficiencies^(*).

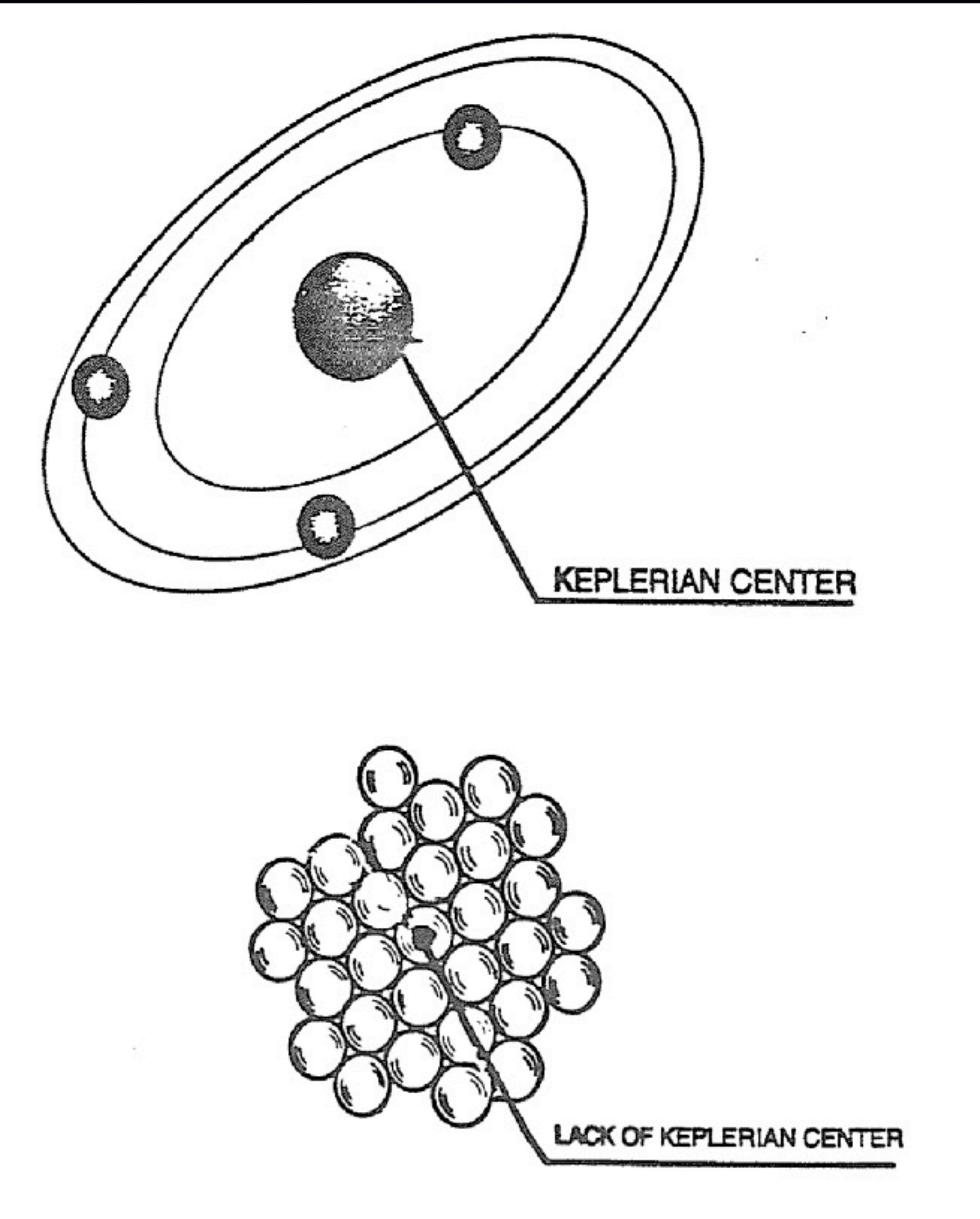
(*) Establishing beyond any scientific doubt
the historical *EPR “incompleteness” hypothesis of QM*
formulated by Nuclear Physics Founding Fathers.

After **80 years**, Quantum Mechanics still misses
a *real understanding* of the *nuclear force*.



Primary differences between the *atomic* and the *nuclear structure*: a ***Keplerian system*** above with the **heaviest constituents in the center** to represent the ***atomic structure***, opposed to the ***system below*** representing the ***nuclear structure***:

1. **does not constitutes** a Keplerian system and
2. **does not possess** a Keplerian nucleus.



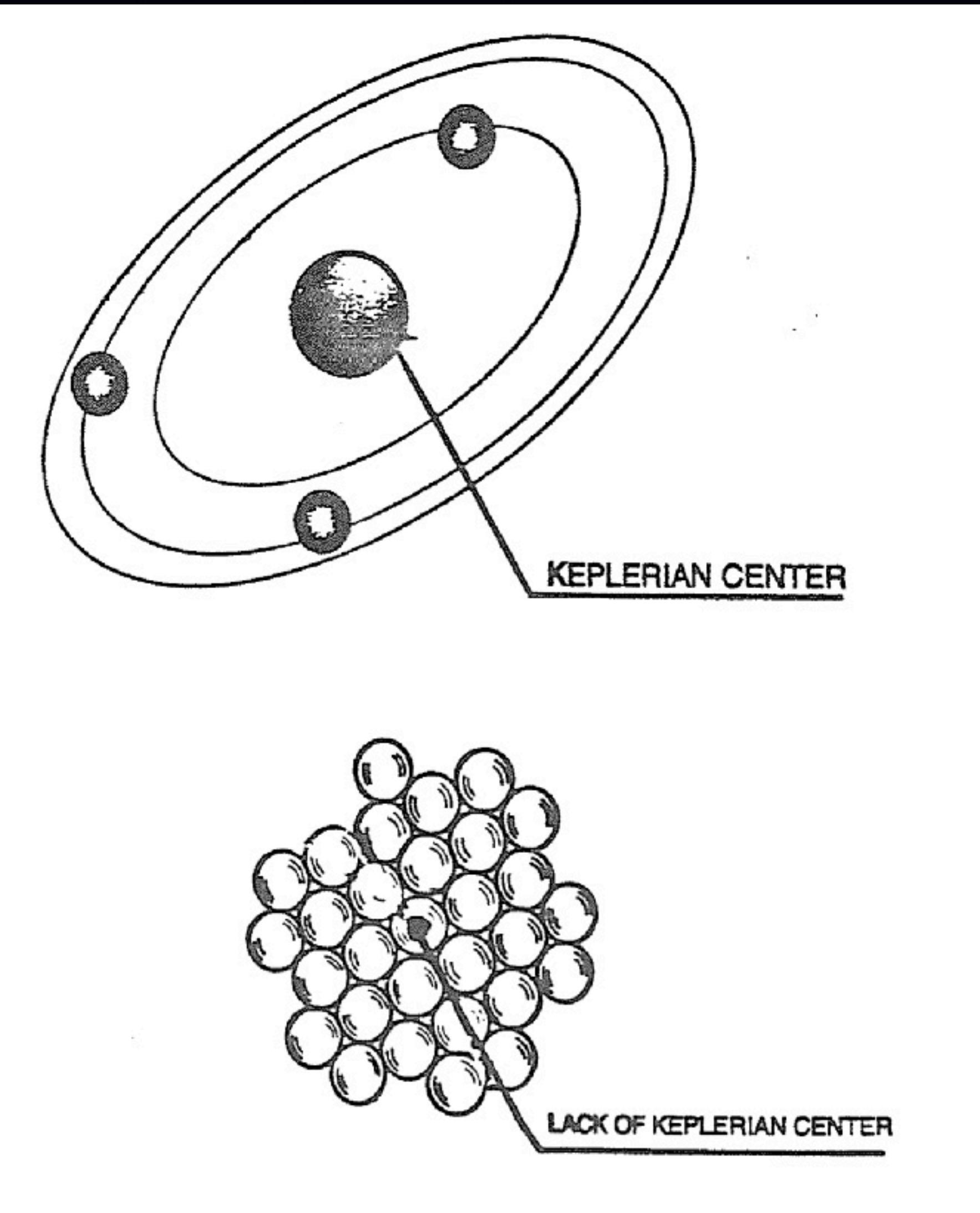
Physic Academia (research-complex)
is using *the first one* to represent and study the latter

After **80 years**, Quantum Mechanics still misses
a *real understanding* of the *nuclear force*.



This **structural difference** has *truly fundamental implications* since implies that the *spacetime symmetries of the former cannot be exactly valid for the latter*. Thus, a theory which is valid for the *Keplerian structure of atoms* **cannot be exactly valid for the non-Keplerian structure of nuclei**.

Physic Academia (research-complex)
are you kidding us?



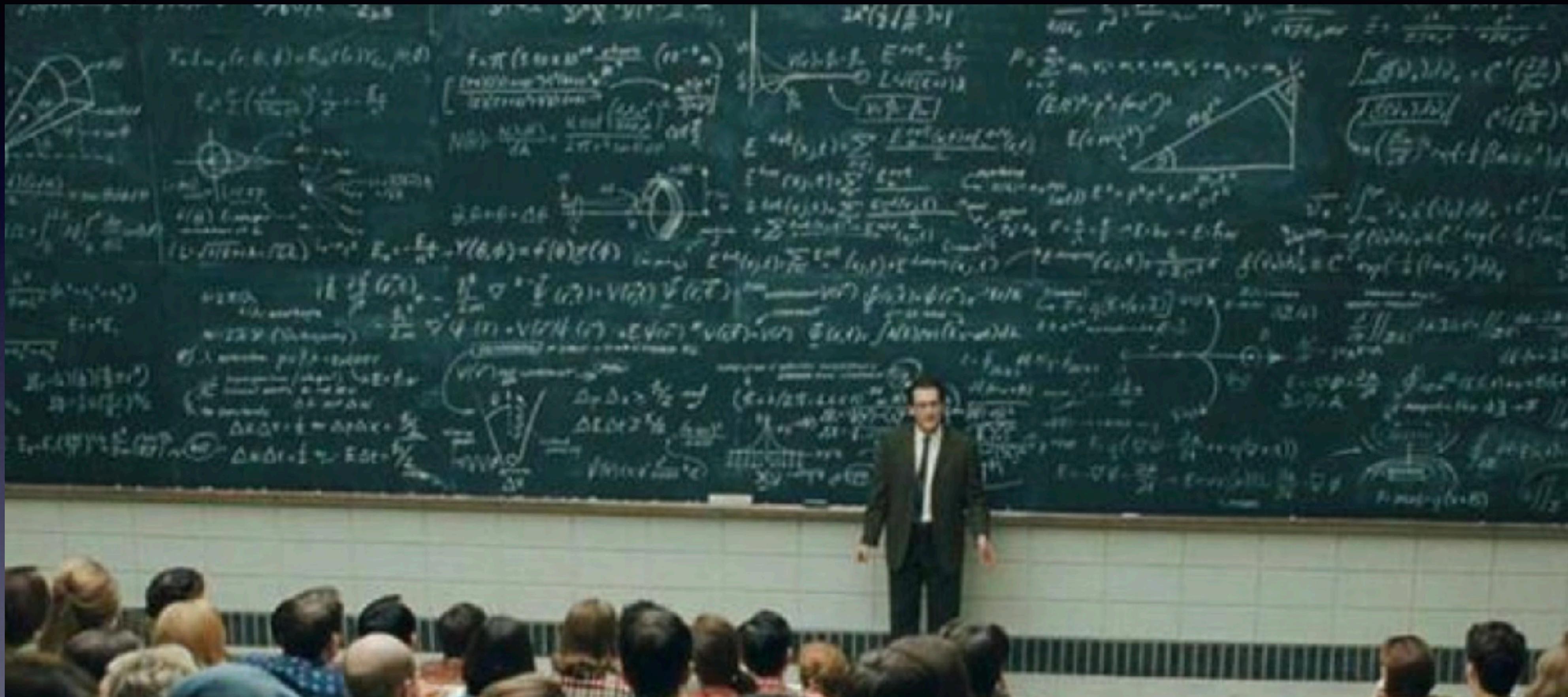
What **we** (8.5×10^9 *  , ) got ***in the end?***

*External Terms **censored** in Physics plus insisted manipulations of the experimental reality*

Restraining accurate study of **basic physical phenomena**, some of them including: **interior dynamical systems** requiring **contact, non-potential forces** on **deformable, mass-extended** objects, **irreversible systems** such as **energy releasing processes**.

*Preventing “de facto” the **possibility** of **conceiving novel sources of Energy and Fuels!!!***

But a fearless man opposed this



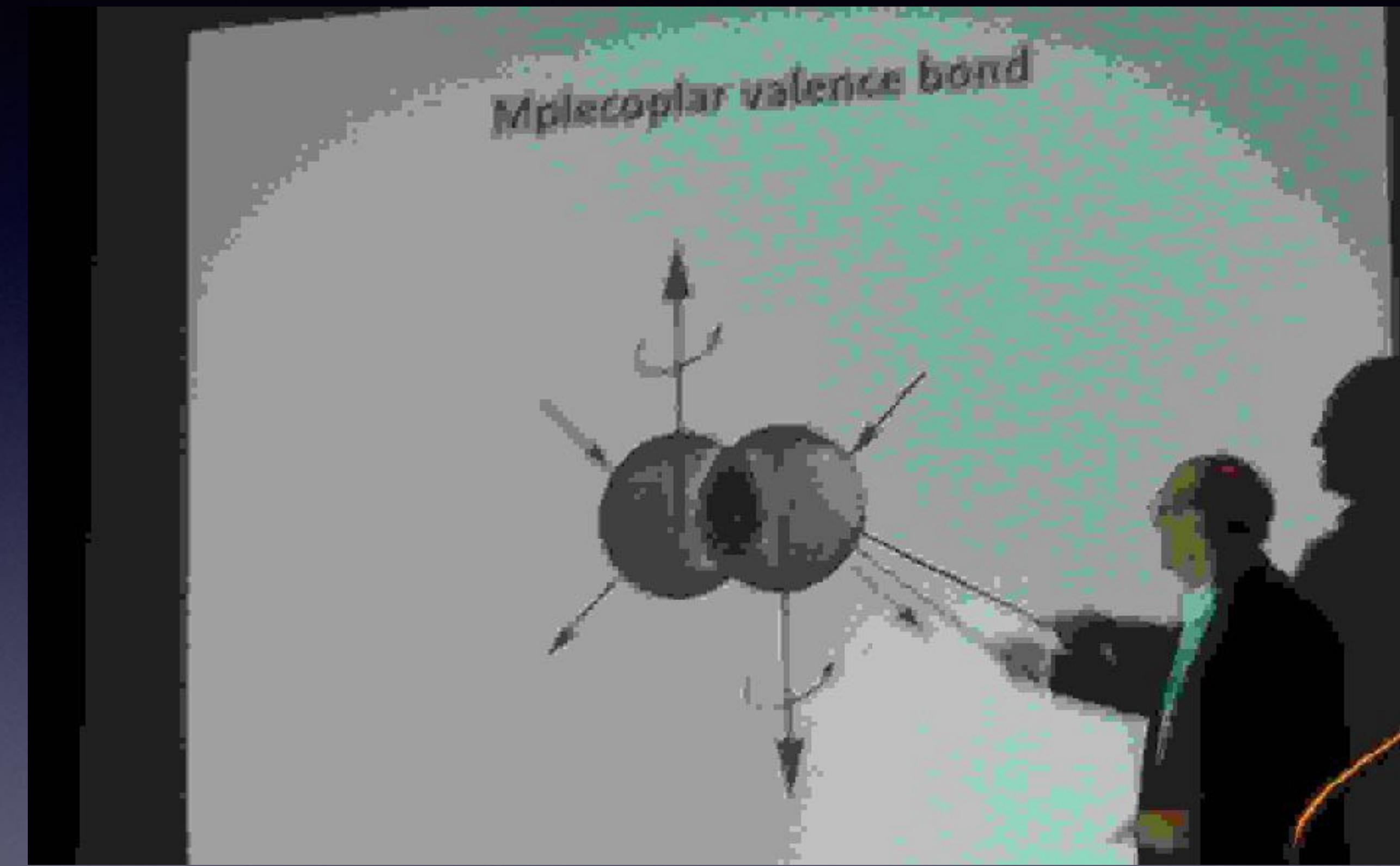
Professor Santilli at Harvard (1978, under USA DoE contract)
*introduced **Hadronic Mechanics** as a generalisation of
Quantum Mechanics*

...because his only ❤ Love was for...

*Genuine Knowledge
to explain nature*

*Like the previously mentioned
Giants (and others) he admire*

τὰ φυσικάτων φιλόσοφος,
σοφία για φαινόμενον



Prof. Santilli explains representation of
electron valence bonds: the **first** motivation
for his Iso-mathematics

Proving *formally* that *External Terms*

Cannot be discarded

...on the contrary...

Originate at the *most elementary level* of Nature

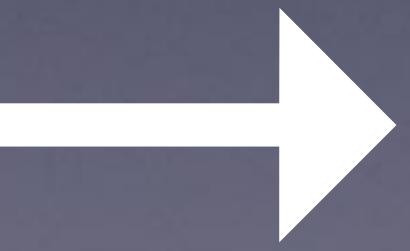
...confirming the *depth* of the *analytic conceptions*
by *Lagrange* and *Hamilton!*

External Terms are irreducible

Non Reduction Theorem

“A macroscopic system with forces that are nonconservative and/or irreversible over time cannot be consistently decomposed into a finite number of elementary particles all with solely conservative forces derivable from a potential and, vice versa, a finite number of elementary particles all in conservative conditions cannot consistently yield, under the correspondence principle or other means, a macroscopic system with nonconservative and/or irreversible forces.”

I repeat: **confirming** the **depth** of
the *analytic conception of nature*
by **Lagrange** and **Hamilton**



In his 70-years scientific journey...

Sir Professor Ruggero Maria Santilli
and *his associates*
pioneered research
conducted **in various countries**,
covering over **10,000 pages of**
publications including
over 1,000 papers,
some **25 post Ph.D. level**
monographs and something like
50 volumes of conference
proceedings.



...he created frameworks for each single extent: A B C D

MECHANICS AND THEIR ISODUALS

Newtonian Mechanics
Hamiltonian mechanics
Quantization
Quantum mechanics
Special Relativity

Isodual Newtonian Mechanics
Isodual Hamiltonian Mechanics
Isodual Quantization
Isodual Quantum Mechanics
Isodual Special Relativity

REPRESENTATION: isolated systems of point-like particles (mechanics) and antiparticles (isodual mechanics) under local, linear and potential forces.

ISOMECHANICS AND THEIR ISODUALS

Iso-Newtonian Mechanics
Iso-Hamiltonian mechanics
Isoquantization
Isohadronic mechanics
Isospecial Relativity

Isodual iso-Newtonian Mech.
Isodual iso-Hamiltonian Mech.
Isodual Isoquantization
Isodual isohadronic Mech.
Isodual Special Relativity

REPRESENTATION: Isolated, reversible and single-valued systems of extended particles (isomechanics) and antiparticles (isodual isomechanics) under internal, local and nonlocal, linear and nonlinear, potential and nonpotential forces.

GENOMECHANICS AND THEIR ISODUALS

Geno-Newtonian Mechanics
Geno-Hamiltonian mechanics
Genoquantization
Genohadronic mechanics
Genospecial Relativity

Isodual Geno-Newtonian Mech.
Isodual Geno-Hamiltonian Mech.
Isodual Genoquantization
Isodual Genohadronic Mechanics
Isodual Genospecial Relativity

REPRESENTATION: open, irreversible and single-valued systems of extended particles (genomechanics) and antiparticles (isodual genomechanics) under external, local and nonlocal, linear and nonlinear, potential and nonpotential forces.

HYPERMechanics AND THEIR ISODUALS

Hyper-Newtonian Mechanics
Hyper-Hamiltonian mechanics
Hyperquantization
Hyperhadronic mechanics
Hyperspecial Relativity

Isodual Hyper-Newtonian Mech.
Isodual Hyper-Hamiltonian Mech.
Isodual Hyperquantization
Isodual Hyperhadronic Mech.
Isodual Hyperspecial Relativity

REPRESENTATION: open, irreversible and multi-valued systems of extended particles (hypermechanics) and antiparticles (isodual hypermechanics) under external, local and nonlocal, linear and nonlinear, potential and nonpotential forces.

i.e. brand new supreme *IsoMathematics* for quantitatively represent and measure *Nature of Phenomena* under their respective applicability scopes

...spreading beams of light...

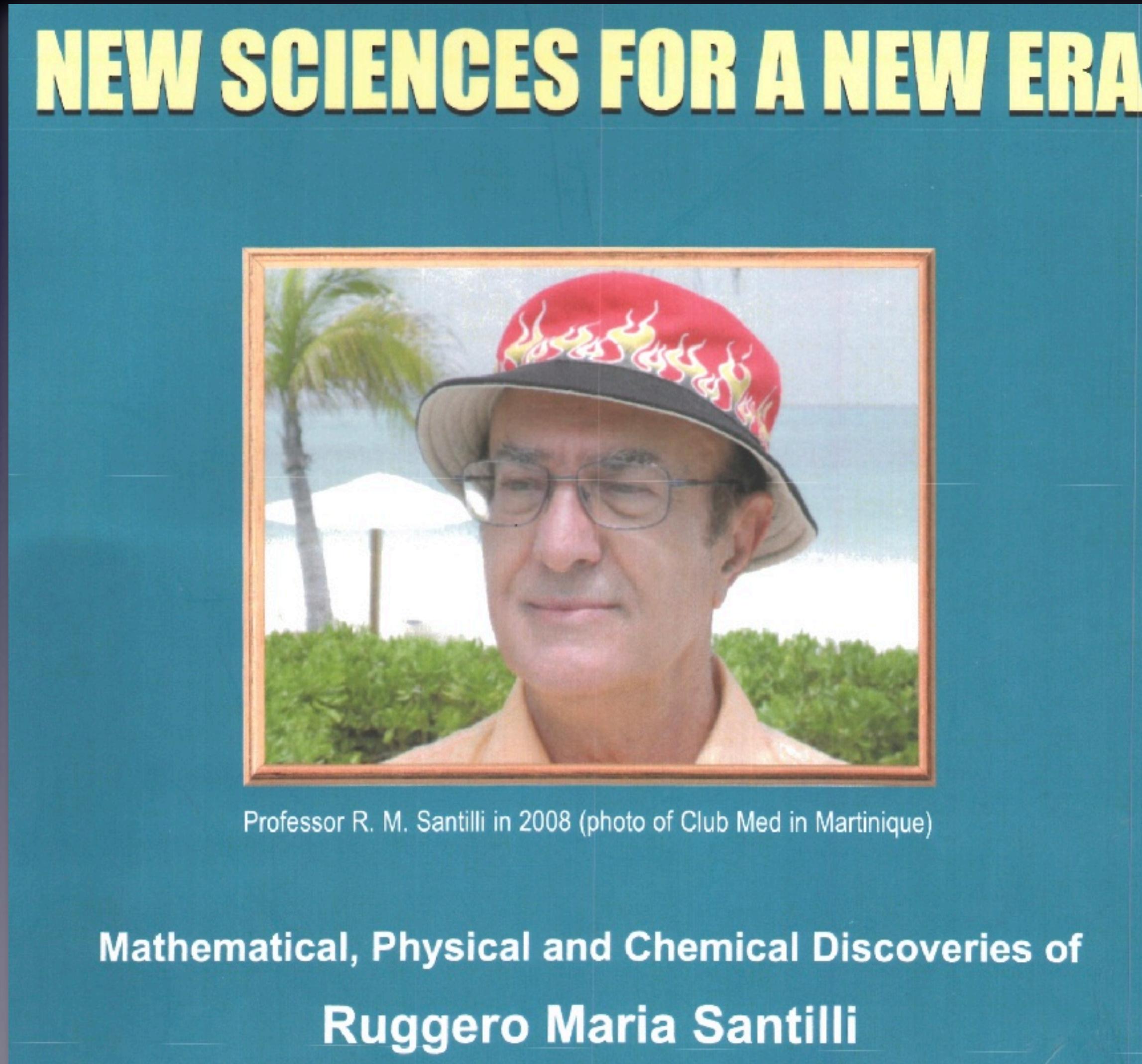


<https://eprdebates.org/>



For more info

...laying solid basis for...



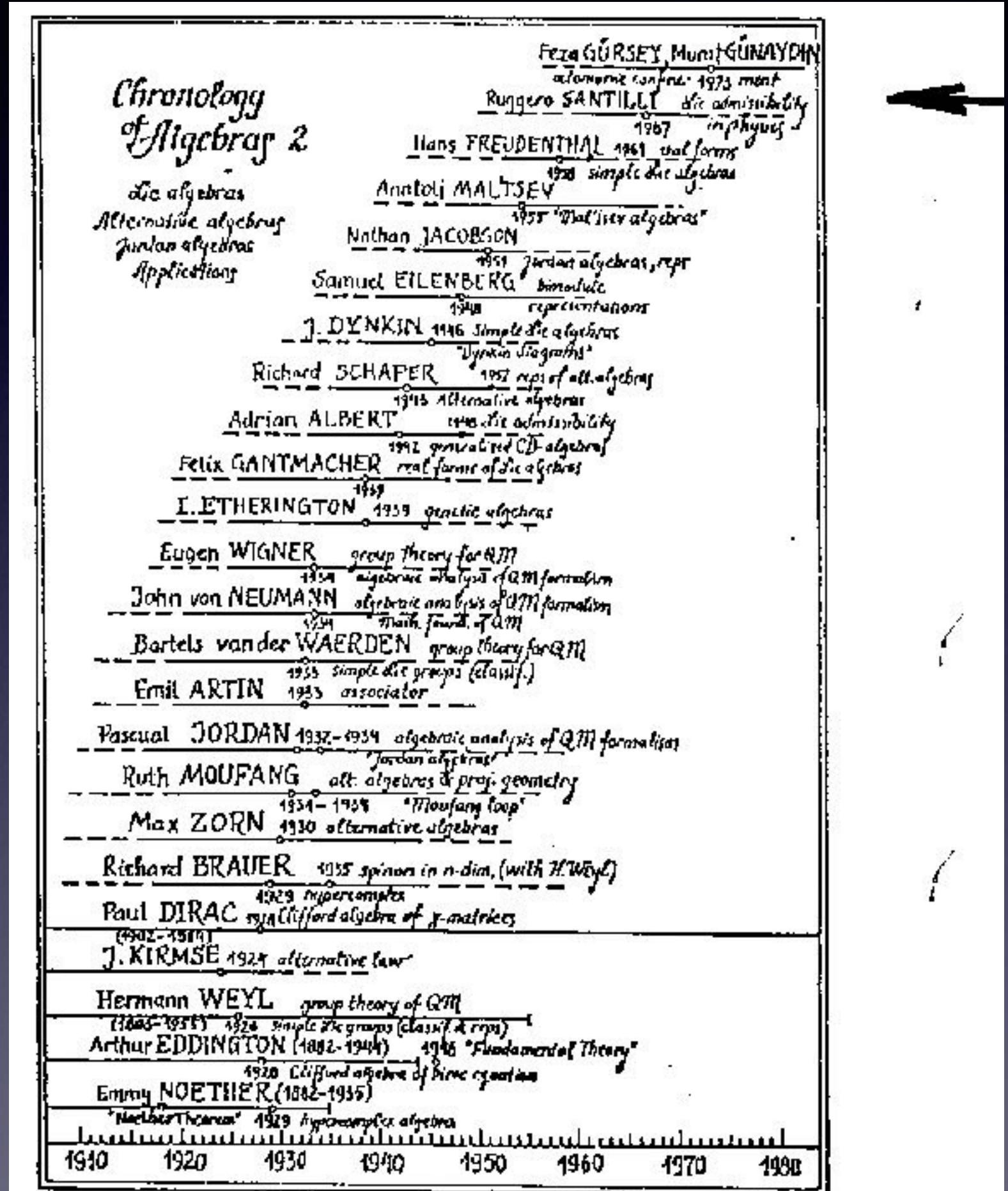
Professor R. M. Santilli in 2008 (photo of Club Med in Martinique)



For more info

...well grounded Sciences to stand the test of time!

Prof. Santilli's ***Isotopic formulations*** (and their ***Iso-duals***) can describe ***extended, non-spherical*** and ***deformable*** particles (anti-particles) under ***linear*** and ***non-linear, local*** and ***non-local*** and ***potential, Hamiltonian*** as well as ***non-potential, non-Hamiltonian*** interactions



Nomination by the Estonia Academy of Sciences of Prof. Santilli ***among the most illustrious applied mathematicians of all times*** (June 9th, 1990)

...and finally **conquered** what he was looking for!



σοφία (*sophía*):
Knowledge...

Sir Professor Ruggero Maria Santilli
achieved for **the first time** in **history**
structural generalisation
of **both** pre-existing
mathematical and ***physical*** theories
capable of a ***rigorous, consistent***
invariant treatment
under ***the most general forces***



Santilli's family heraldic crest
says: "***Light from darkness***"

...fair enough, but what about...



...new clean fuels?
...recycling waste?

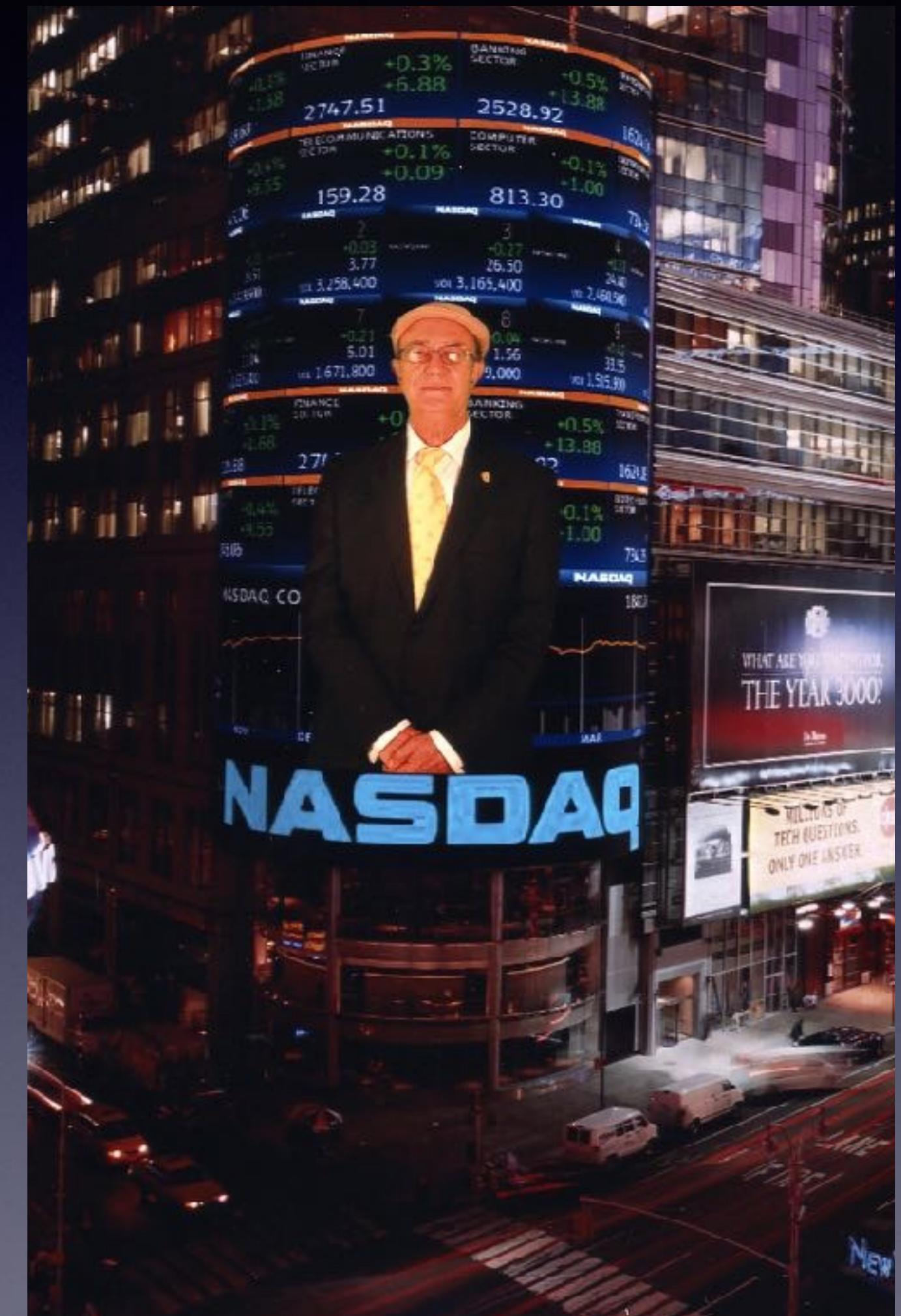
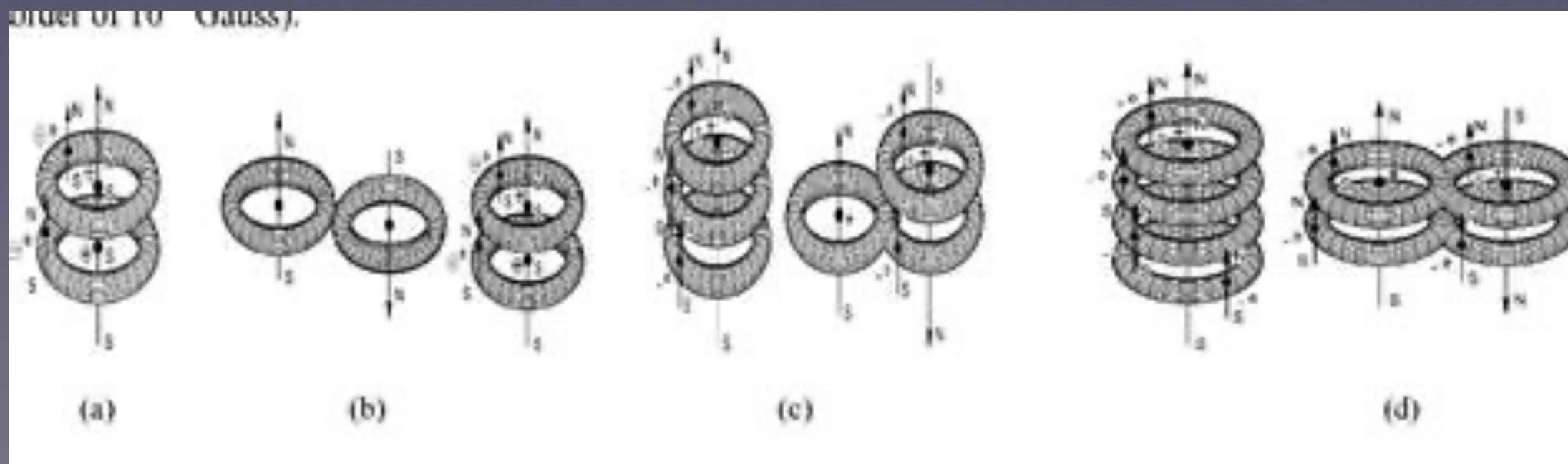
8.5e9 *



...New Clean Fuels: achieved 😎

Using the **applicable tools** a new *chemical specie* was **predicted** having **paramagnetic molecular bounds** with **complete combustion** releasing O_2 as result **instead of CO_2**

- Experimentally detected
- Studied
- Commercially produced



Prof. Santilli projected during
MagneGas Corp public offering

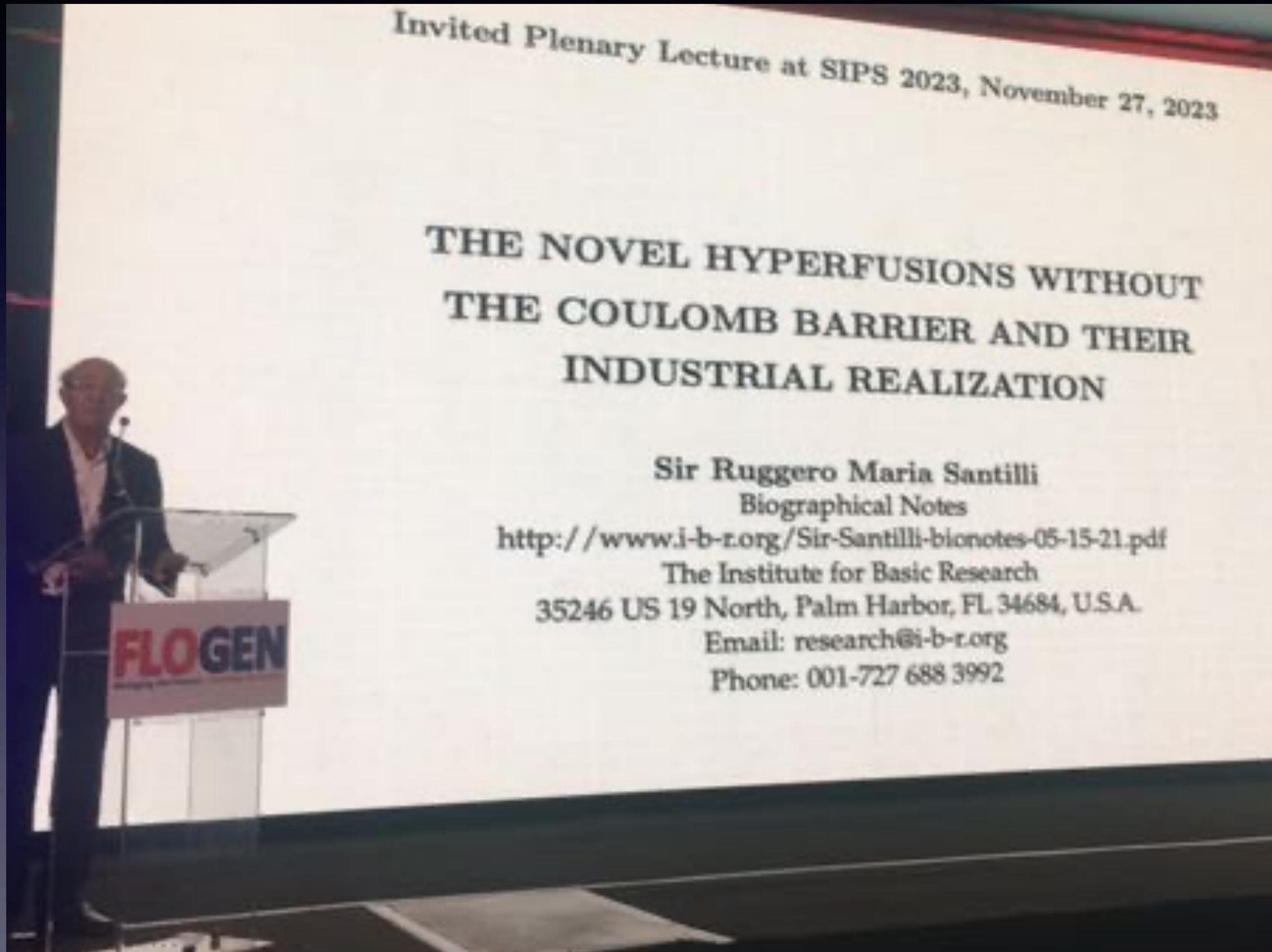
...New Clean Fuels: achieved 😎

New Clean Fuels were part of the motivations underlying
Hadronic Mechanics



The new MagneGas fuel and his separated new Magne-Hydrogen, new Magne-Oxygen fuel and HHO gas synthesized from water is **a real sustainable way** to limit anthropic “Green House” effect

...New Clean Fuels: refinements along the way 😊



Prof. Ruggero Maria Santilli delivering an Invited Plenary Talk on his HyperFusions without the Coulomb barrier at the International Meeting in Sustainable New Energies, SIPS 2023, Panama.

Intermediate Controlled Nuclear Fusions (ICNF) without harmful radiations or waste



For more info

...Recycling waste: achieved 😎

The other **good news** is that ***Magnecular Fuels*** can be ***obtained from many kind of waste***

Other predictions concerning **recycling** of **nuclear waste**:

1. via the stimulated decay of peripheral neutrons
2. via the rapid stimulated decay caused by the negatively-charged pseudo-proton irradiation

What *more* 8.5×10^9 * 🧑‍🤝‍🧑, 🌎 could get?

*External Terms **represented** in Physics plus
novel predictions and plenty of applications*



*Novel sources of Energy and Fuels
are just the tip of the iceberg!!!*

QA

Dedication

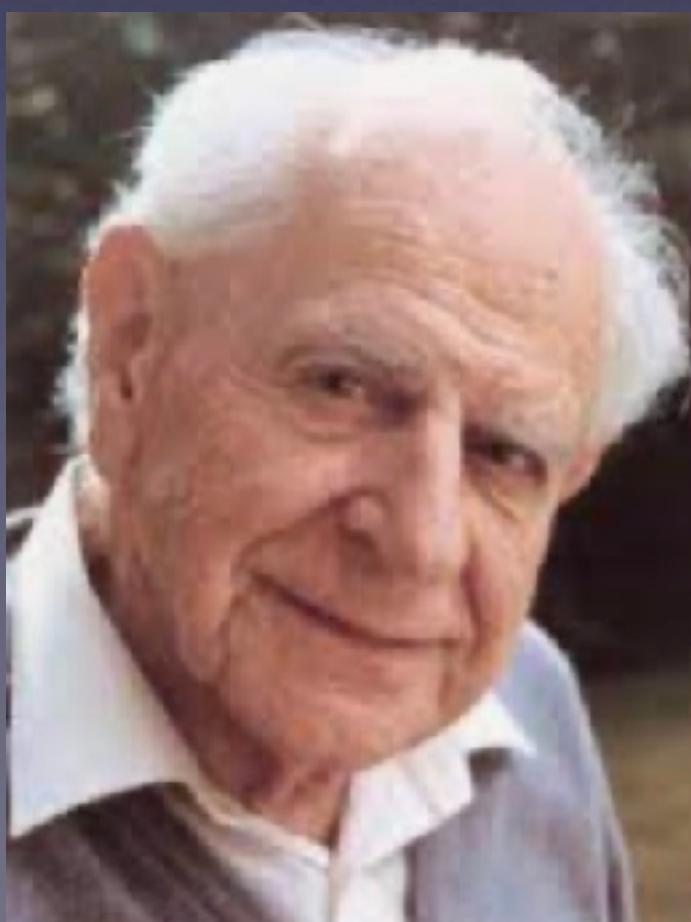
*This talk is dedicated
in the memory of:*

and:

The Greek mathematician
Grigorios Tsagas
for *fundamental* contributions
in the *Lie-isotopic methods*
underlying **Hadronic Mechanics**



The late British philosopher **Carl Popper**
for his *strong support* in the *construction* of
Hadronic Mechanics,
as shown in his last book
“*Quantum Theory and the Schism in Physics*”



Thank you

Now it's *up to you* whether to

....turn the **light**  on,
or keep staying
in the  darkness...



<https://www.santilli-foundation.org/>