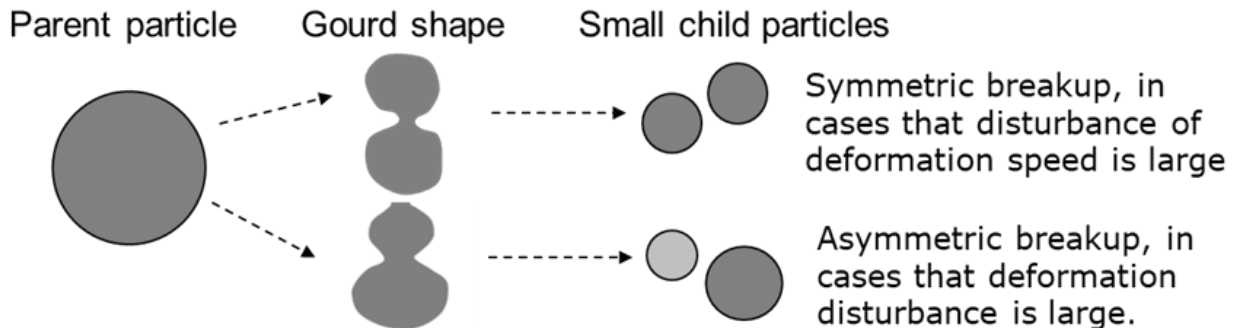


Interdisciplinary research on the splitting process of various particles

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Professor Ken Naitoh from the Department of Applied Mechanics and Aerospace Engineering at Waseda University in Japan, walks us through universal laws discovered from outstanding integrated interdisciplinary research on the splitting processes of various particles

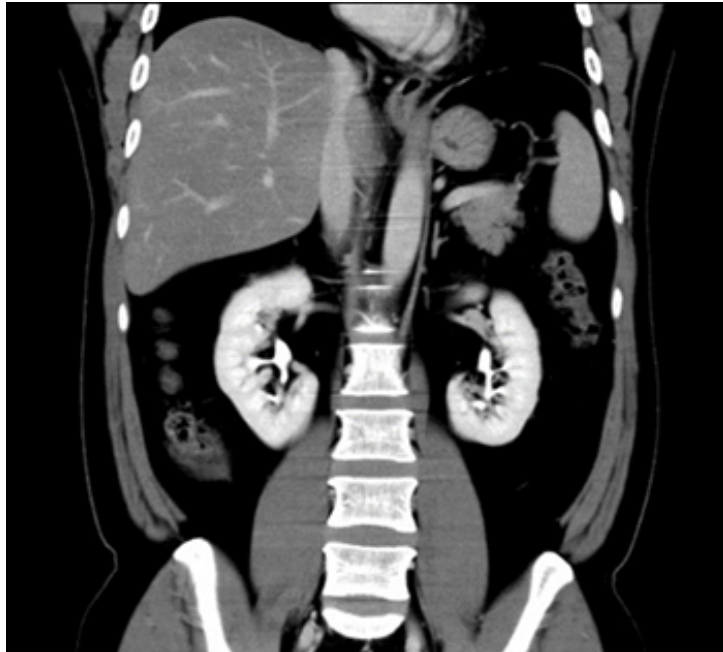
This profile will discuss universal patterns revealed by particle breakups research, particularly interdisciplinary connections. This discussion will include hyper-gourd theory for producing quantum leaps of subatomic, biological, cerebral, economic, cosmic, and information worlds, leading to a carbon-zero society, third universal medication, and easy earth-space drive.

The inevitability of particular masses for various biological and abiological flexible particles lying from subatomic to cosmic levels is synthetically revealed as the scales fall from the eyes. This is possible because each “flexible” particle is commonly generated by a mode in which a larger particle mainly breaks up into two smaller ones through a “gourd” shape with two lumps while showing left-right symmetrical and asymmetrical divisions.

Essentially, rather than “hyper-string”, “hyper-gourd” relatively explains the inevitability of particular particle masses well because the rate-determining stage is basically around breakup timing with a gourd shape having two smooth particles connected. Particles include hadrons, quarks, leptons, atoms, biological molecules hydrated, liquid droplets of fossil fuel and water, living cells including microorganisms and cancers, multi-cellular systems such as organs, neural systems and the brain, stars, galaxies, and the cosmos.

These particular masses, sizes, frequencies, and diversity of particles dominated by the super-magic numbers, in fractal nature, can be derived by the dynamic model based on quantum-statistical fluid mechanics of the flexible fluid-like gourd (Hyper-gourd theory).

As particles are larger than molecules, biological cells include lots of clearly visible water. This is because, for example, living beings can survive with water of about 70% as the main components. In contrast, gours of molecules are hydrated, and subatomic particles may be related to gluon and quark condensation-like immersed mass. Thus, we found that water decides masses of five types of nitrogenous bases, i.e., masses of purine and pyrimidine.



Examining actual particle masses quantitatively

Let us examine some actual particle masses quantitatively. The dynamic model approximated for force terms by using the first order Taylor expansion and the weakest stability principle shows us that particular masse ratios of various particles have a fusion of about symmetric 1:1 of Yamato ratio and weak left-light asymmetric 2:3, where close to golden-silver ratios are inevitably observed in nucleic acids, IgXs, and also organs.

Typical examples are Watson-Crick base pairs in DNA of about 2:3, while left-right asymmetric lungs or liver are about 2:3 parts. In contrast, living beings have some symmetric base pairs in RNA and symmetric urine, arms, legs, eyes, and nose. (Liver has asymmetric left and right leaves.) The dynamic model reveals its inevitability.

More on the dynamical model

The inevitable fusion of two types, i.e., asymmetry and symmetry, clarified by further analyses based on the dynamic model, also reveals the essential mechanism of producing three-dimensional structures through self-organising from one-dimensional DNA information in living beings. This can easily be understood because two connection types of blocks (2:3 and 1:1) give children more shapes of three-dimensional objects with functions like grasping.

Consequently, this model clarifies the physical relation between one-dimensional information, three-dimensional complex structure with concave and convex, and function (Onto-biology). This may also lead to a new medical approach to Situs inversus.

It should be emphasised that, according to speeds of neutron colliding, abiological uranium 235 symmetrically and asymmetrically breaks up into child particles of about 2:3 and 1:1, i.e., the two patterns with symmetric breakup due to high-speed neutron impact and asymmetric one for low energy input. This also answers the question of which is the predominant, symmetric or asymmetric part, according to characteristics of disturbances entering from the outer area.

Thus, this also brings the possibility of a new engine reactor related to low-energy nuclear reaction without radiation (Fusine: fusion engine), essentially overcoming the global warming problem and free travel to space, resulting in peace. The Fusine will result in human beings fighting only in outer areas far from the Earth in the next century.

By applying the 9th order of Taylor expansion, this dynamical model also qualitatively reveals the larger asymmetric mass ratios over 1:3 for amino acids and proteins and huge mass ratios over 10,000:1 for tiny elementary particles such as hadrons, quarks, and leptons. Thus, analyses based on the dynamical model bring a new definition of the boundary between living beings and non-living systems.

The dynamic model based on gourd lying between quantum, statistical, and continuum mechanics posits a new hyper-interdisciplinary physics that explains an extensive range of scales, concentrating only on breakup timings. At the same time, the Newton, Schroedinger, and Boltzmann equations describe only a narrow range of scales.

Moreover, it is apparent that the fusion of molecular particles' symmetric and asymmetric mass ratios naturally leads to various reaction paths between the particles, which are symmetric and asymmetric parts inside molecular network patterns employed in multicellular systems, including human beings.

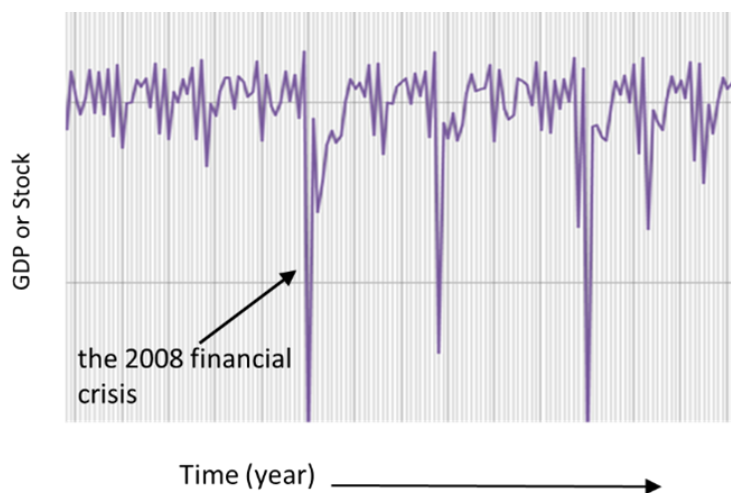
A macroscopic kinetic equation model for the networks of six variables (Prognostic medication and Morphogenic economics)

After logically classifying all the known and unknown molecules into six macroscopic molecular groups (three information groups and three function groups), we derived a macroscopic kinetic equation model for the six variables. Then, the kinetic equation model for the fusion of symmetric and asymmetric network patterns reveals fundamental biological clock and illness history, including catastrophic situations such as cancer and manic depression.

This shows the possibility of predicting the premonition of severe illnesses in humans and animals (Prognostic medication). This may generate new biotechnology as the third panacea after intravenous drip (water injection) and IPS cells.

Emphasis is also placed on the kinetic model for predicting severe illness of individual human beings, which may also predict economic catastrophes like panic (Morphogenic economics). This is because biological cells inside the human body mathematically and macroscopically correspond to companies filled with the human beings in the world and because the economic world of an aggregate of human beings is also said to be alive.

The amount of CO₂ emissions from each company will be roughly proportional to the total sales of the company. Thus, this kinetic model will clarify which group among the six company groups produces much CO₂. Six company groups are three information groups (active group related to deep information, active one related to weak information, and depressive one) and three function groups related to three information groups. Thus, this may clarify the best way to reduce CO₂ and lead to a peaceful world while reducing economic disparity.



Morphogenic economics
 Naitoh. [Japan J. of Industrial and Applied Mathematics](#) (2011).
 Naitoh. [J. of Physics, C.S. 344](#) (2012).

Beyond artificial intelligence

Beyond artificial intelligence, like the methodology for predicting the premonition of illness, we also propose artificial genius because the parts in network patterns of sizes of the golden-silver ratios around 2:3 also led to sympathy with outer information, including the ratios of about 2:3, i.e., a comfortable feeling for the human brain. This comfort implies polestar for conception.

There is also recent experimental evidence by other researchers that supports the relationship between the asymmetric neural system and comfort. One of the first targets of my laboratory is the automatic production of comfort and hilarious music, not a mixture of traditional music and songs, i.e., leading to more love and peaceful minds.

Fugine: Future ultimate efficiency engine

About thirty years ago, one of the starting points of my work was on the thermo-fluid dynamic models of breakup processes of liquid fuel droplets in traditional compressive combustion engines, including stratified-charge reaction. It is well known that more breakups of liquid fuel particles result in higher thermal efficiency, higher combustion efficiency, and less emissions such as NO_x, soot, and unburned hydrocarbon (HC).

Thus, finally, I should stress that the dynamic model shown here also produces the other quantum leap of combustion engines, which may bring very high thermal efficiency close to that of the Carnot cycle due to nearly complete air insulation leading to less heat loss on chamber walls and relatively silent high compression leading to less exhaust gas temperature.

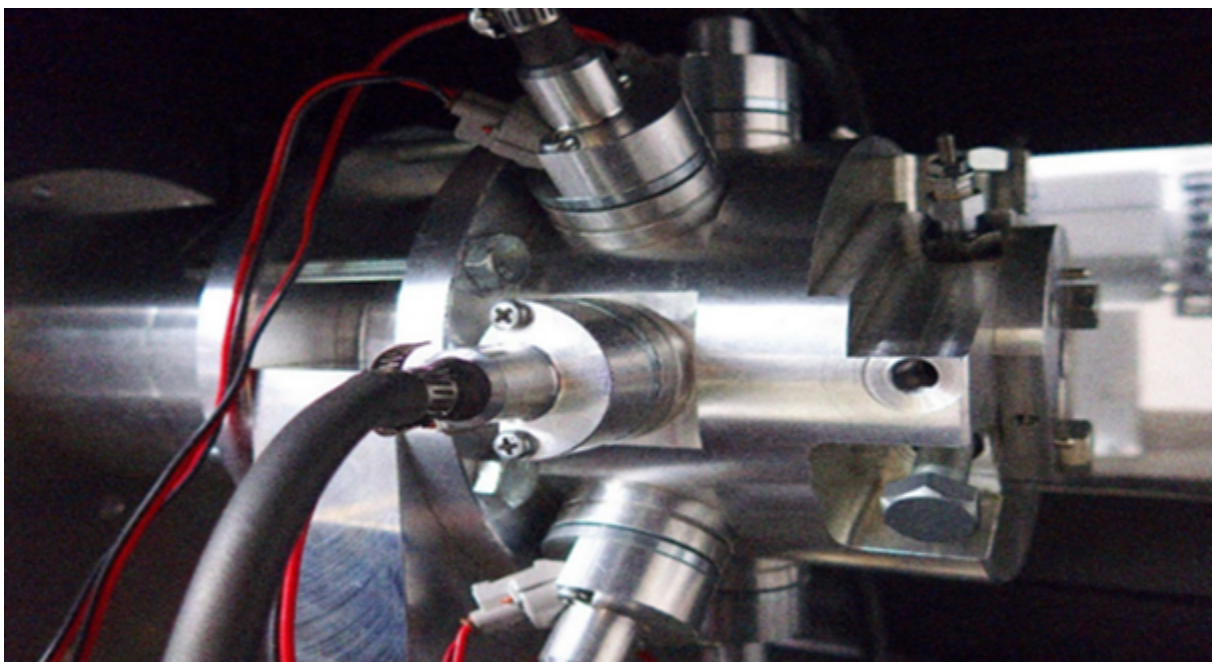
This engine (Fugine: future ultimate efficiency engine) is very cheap for everyone and suitable for hydrogen fuel. Nissan sells a strong hybrid engine vehicle (HEV) now after a pure battery electric vehicle (BEV), while Mitsubishi sells plug-in HEV (PHEV). Toyota sells HEV and PHEV.

The other European automotive companies will mainly sell PHEVs after BEV because PHEV may use about only a quarter of e-fuel compared with the engine-only system. This is also because PHEV can supply electricity for houses in two ways, when stronger hurricanes increasing cut power transmission lines more frequently from now. For these purposes, Fugine will be the critical technology.

Automobiles bring us actual chances of connections of lovers like a gourd, although the internet leads to only initial weak approaches of people like two particles before attaching. Hyper-gourd, viewed from subatomic to cosmic levels, is one of the keywords for everything.

About 15 years ago, a new fluid-dynamic method for solving a 50-year mystery was also proposed by my laboratory, which can simulate and predict mysterious turbulent flow for internal flows like those in engines, which has not been solved for over 50 years. The method strongly also accelerates the development of Fugine.

Turbulence is an aggregate of various sizes of vortices. We can see galaxies over heaven, which also have vortex structures. Thus, this method may reveal cosmic mysteries in the future. Therefore, we can see the universe in the engine and propose engine-verseology.



References

1. Ken Naitoh, 2023. <https://researchfeatures.com/particle-breakups-connect-phenomena-biology-cosmology/>
 2. Kobayashi et al. SAE paper AeroTech, 2023
<https://www.sae.org/publications/technical-papers/content/2023-01-0984/>
 3. Ken Naitoh et al. SAE paper WCX, 2023 <https://www.sae.org/publications/technical-papers/content/2023-01-0401/>
 4. Ken Naitoh J. of Physics, 2012 <https://iopscience.iop.org/article/10.1088/1742-6596/344/1/012008>
 5. Ken Naitoh, JJIAM, 2001 <https://link.springer.com/article/10.1007/BF03167356>
 6. Ken Naitoh, Artificial Life Robotics, 2012.
<https://link.springer.com/article/10.1007/s10015-012-0056-y>
- Ken Naitoh, Jumpei Tsuchiya, Ken Ayukawa, Susumu Oyanagi, Takuto Kanase, Kohta Tsuru and Remi Konagaya. Fundamental Experimental Tests toward Future Cold Fusion Engine Based on Pointcompression due to Supermulti-jets Colliding with Pulse (Fusine).
 - J. Condensed Matter Nucl. Sci. 24 (2017), 236-243.
Kobayashi, T, Naitoh, K, et al., (2021) Development of weak cold-fusion engine reactor (fusine) assisted by molecular chemical reaction: based on focusing–compression of 1000 bar and 7000 K due to pulsed supermulti-jets colliding, Journal of Condensed Matter Nuclear Science, 19, 148–166,

Patents

Ken Naitoh. Patents (Japan and USA) from 2009-2020.

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