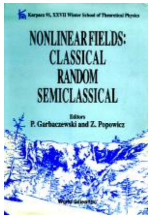
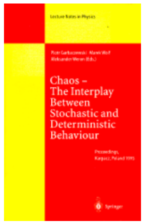


1991

Very brief history of Time

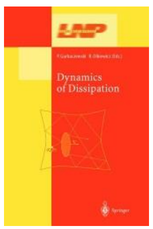
1971- 2011

(„Forty years have passed like one day”)



1995

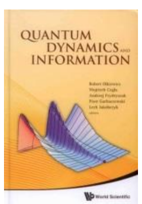
21 May 2011; Piotr Garbaczewski



2002

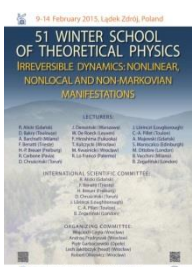
February 2015 ; Piotr Garbaczewski

Extremally brief history of Time



2010

1991 - 2014



2015

History of Ig Nobel prizes

The Nobel Prize in Physics **2010** was awarded jointly to Andre Geim and Konstantin Novoselov *"for groundbreaking experiments regarding the two-dimensional material **graphene**"*

Quiery:
What is first: egg or hen ?
Answer:
Ig Nobel was FIRST, Nobel next.

The twist, 10 years backwards.
Have you ever wondered how to levitate a frog? In 2000, two scientists did just that and were awarded the Ig Noble prize for physics.
Andre Geim and Sir Michael Berry were awarded the **Ig Nobel** prize for physics in 2000 for their 1997 paper **"Of Flying Frogs and Leviton's",** published in the European Journal of Physics.

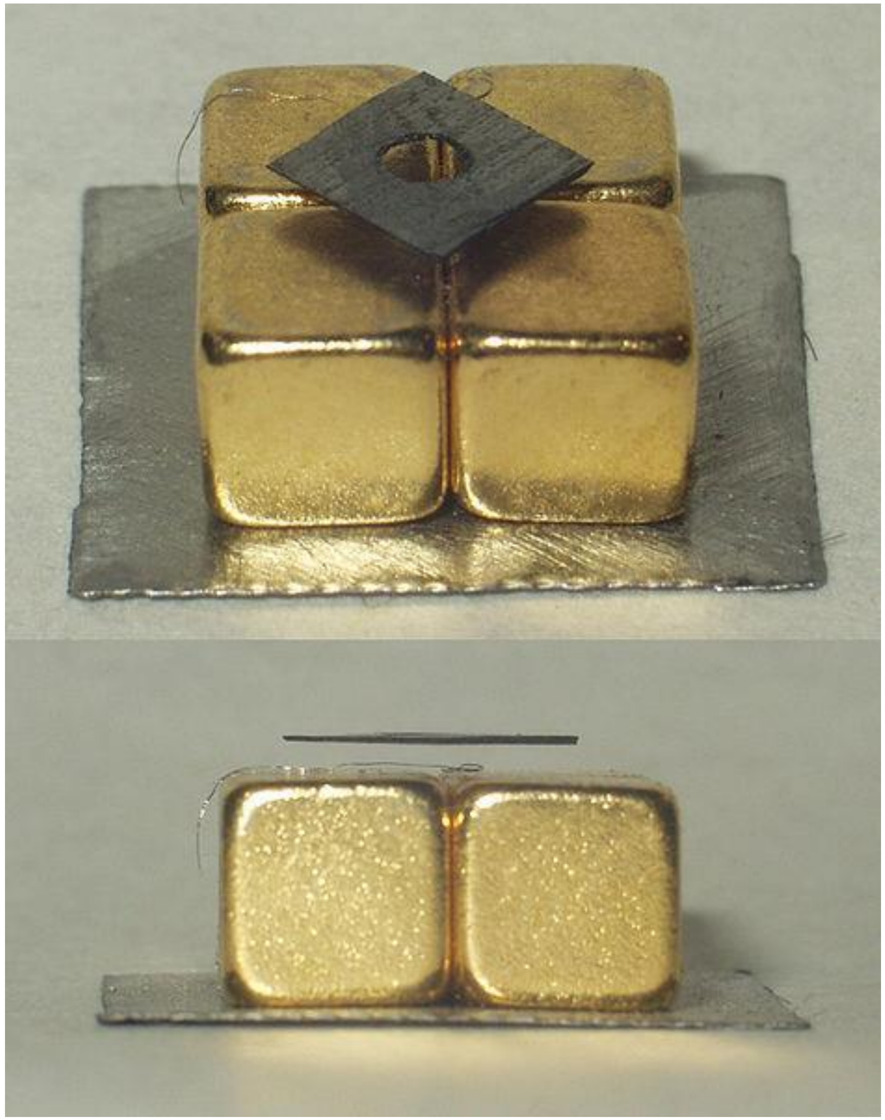
Geim and Berry explained the principle of **diamagnetic levitation.** A magnetic field can be induced in an object that is generally thought of as non-magnetic, a frog for example, by placing it over a strong electromagnet.

The research shows that **all materials, and living organisms, possess molecular magnetism**.

The electrons within these materials react to the magnetic field by altering their orbits around an atom's nucleus in such a way as to oppose its influence. Molecular magnetism is millions of times weaker than ferromagnetism, so the field strengths need to be much greater in order to levitate non-magnetic objects.

Ig Nobel explained: The name is a play on the words *ignoble* ("characterized by baseness, lowness, or meanness") and the Nobel Prize. The pronunciation used during the ceremony is /ˌɪɡnoʊˈbɛl/ ***IG**-noh-**BEL***, not like the word "ignoble". (PL: niecny, haniebny, niegodziwy ☺)

Diamagnetic graphite levitation



Ig Nobel physics, 1991: Thomas Kyle, for his discovery of "the heaviest element in the universe, Administratium".

Ig Nobel Physics, 1992: David Chorley and Doug Bower, lions of low-energy physics, for their circular contributions to **field theory** based on the **geometrical destruction of English crops.**

In 1991, two hoaxers, Bower and Chorley, claimed authorship of many circles throughout England after one of their circles was certified as impossible to be made by a man by a notable circle investigator in front of journalists.[

IgNobel Physics, 1995: Presented to Dominique M.R. Georget, R. Parker, and Andrew C. Smith of Norwich, England, for their **rigorous analysis of soggy breakfast cereal**. It was published in the report entitled "A Study of the Effects of Water Content on the Compaction Behaviour of Breakfast Cereal Flakes."[

I urge you to get a copy of Georget, Parker and Smith's report, get a bowl of good, crisp cereal, and sit down for a multidimensional, crackling good feast of the senses.

Georget, Parker and Smith obtained all their results using water. In theory, these results will hold up when, some day, someone repeats the experiments using milk

There is a rumour on a scientific research proving milk is better on cereal than water

Ig Nobel Physics, 1996: Presented to Robert Matthews of Aston University, England, for his studies of Murphy's Law, and especially for demonstrating that **toast often falls on the buttered side.**[

(Anything that can possibly go wrong, does)

A closer look at tumbling toast

M. E. Bacon, George Heald, and Matt James
Department of Physics, Thiel College, 75 College Avenue, Greenville, Pennsylvania 16125

(Received 14 February 2000; accepted 31 May 2000)

The study of the mechanics of tumbling toast provides an informative and entertaining project for undergraduates. The relatively recent introduction of software packages to facilitate the analysis of video recordings, and the numerical solution of complex differential equations, makes such a study an attractive candidate for inclusion in an experimental physics course at the undergraduate level. In the study reported here it is found that the experimentally determined free fall angular velocity of a board, tumbling off the edge of a table, can only be predicted at all accurately if slipping is taken into account. The size and shape of the board used in the calculations and in the experiments were roughly the same as that of a piece of toast. In addition, it is found that the board, tumbling from

Am. J. Phys. **69** (1), January 2001

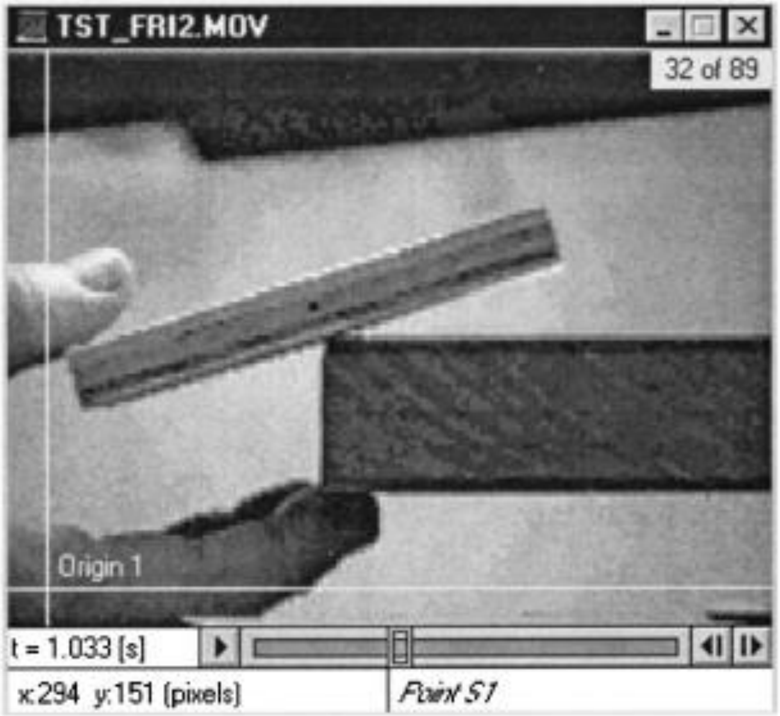


Fig. 2. Typical video frame used to measure the coefficient of static friction for a tumbling board in contact with an edge. The thumb is used to control the gentle tilting of the board. Generally the video clip contains a number of slipping frames as the experimenter gets a feel for controlling the board.

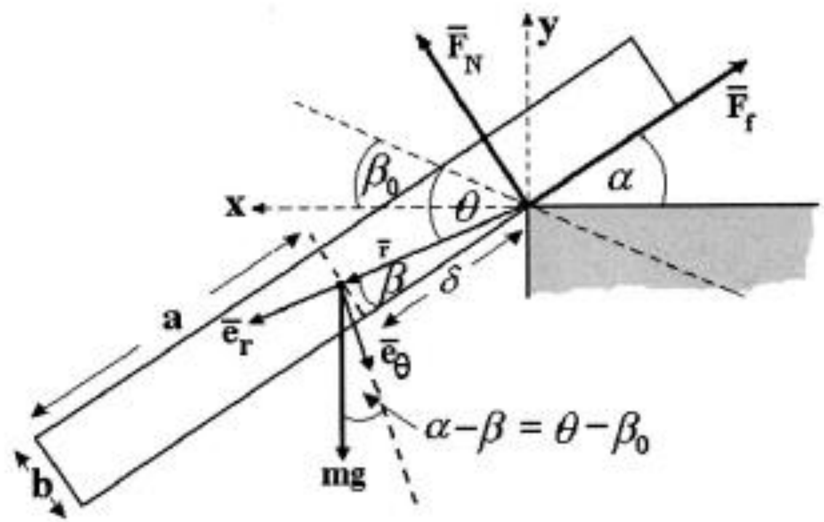
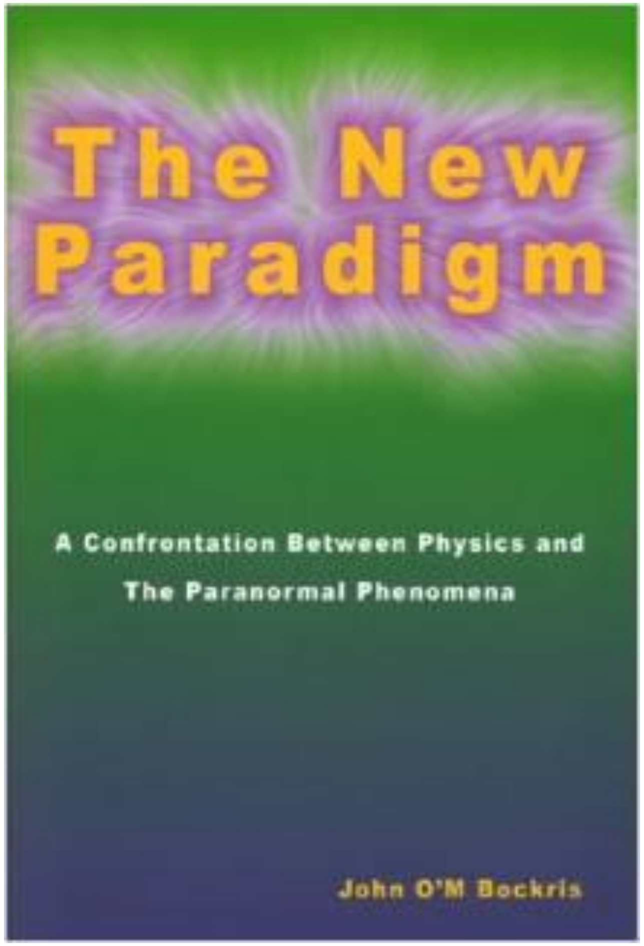


Fig. 1. Coordinate system (r,θ) and geometry for the tumbling board.

Ig Nobel Physics, m1997: Presented to John Bockris of Texas A&M University, for his achievements in cold fusion, in the **transmutation of base elements into gold,** and in the electrochemical incineration of domestic rubbish.

Bockris experimented in **cold fusion** after the 1989 Pons and Fleischmann affair. Bockris' research group was one of the early few to report results that matched those of Pons and Fleischmann. A 3-professor panel of Texas A&M later found that none of the experiments were fraudulently conducted, saying that spiking was unlikely because scientists got different results when they tested the spiking theory by intentionally putting tritium in water.[7] John Bockris later published his side of the controversy and a defense of academic freedom in *Accountability in Research*.[8]



www.amazon.com (2006)

- In 1993, Bockris claimed to be experimenting with the **transmutation of elements**, specifically of base metals **into gold**. The scientist received a fair amount of media attention for these extraordinary claims, and other professors felt Texas A&M's reputation was suffering from the connection to the discredited "science" of alchemy.
- In 1997, Bockris was awarded an Ig Nobel Prize in the field of Physics for his work in **cold fusion**.[10]
- Bockris has subsequently retired from his professorship at Texas A&M.

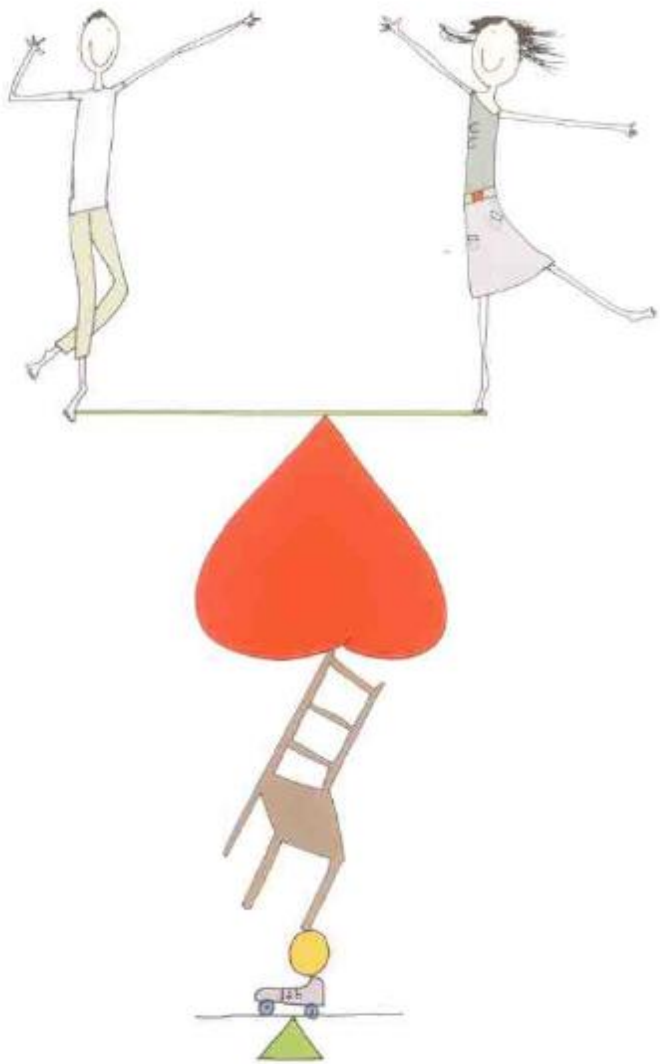
Bernhardt Patrick John O'Mara Bockris (born 5 January 1923 [1] died 7 July 2013) was a professor in the physical sciences, chiefly electrochemistry. Among wide ranging contributions to physical chemistry, Bockris is best known for his creation of physical electrochemistry, taking an old and decayed subject into modern times (1950 to 1970); for the introduction of a hydrogen economy (1971 to present); and for the first known nuclear reactions to be carried out in aqueous solutions (1989 to 1997).[2][3]

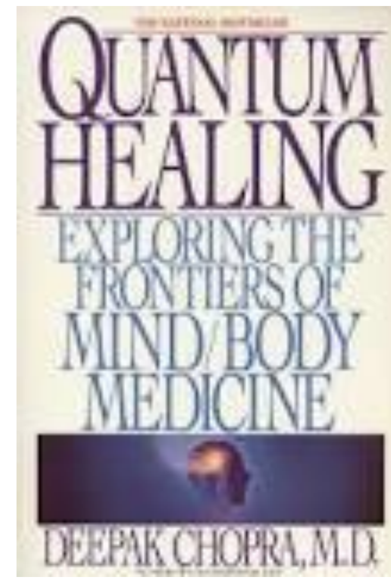
The Texas A&M University, 1979 – 1997. A Professor and a Distinguished Professor of Chemistry (1980).

Ig Nobel Physics, 1998: Presented to Deepak Chopra of The Chopra Center for Well Being, La Jolla, California, for his unique interpretation of **quantum physics** **as it applies to life, liberty, and the pursuit of economic happines**s.

$\hbar$ **?**

„Pursuit for happiness" with no quantum connotations – the (in)stability problem of a classical dynamical system. (Warning: one may in principle try to build a theory of a chair or that of a couple as a quanum many-body problem)

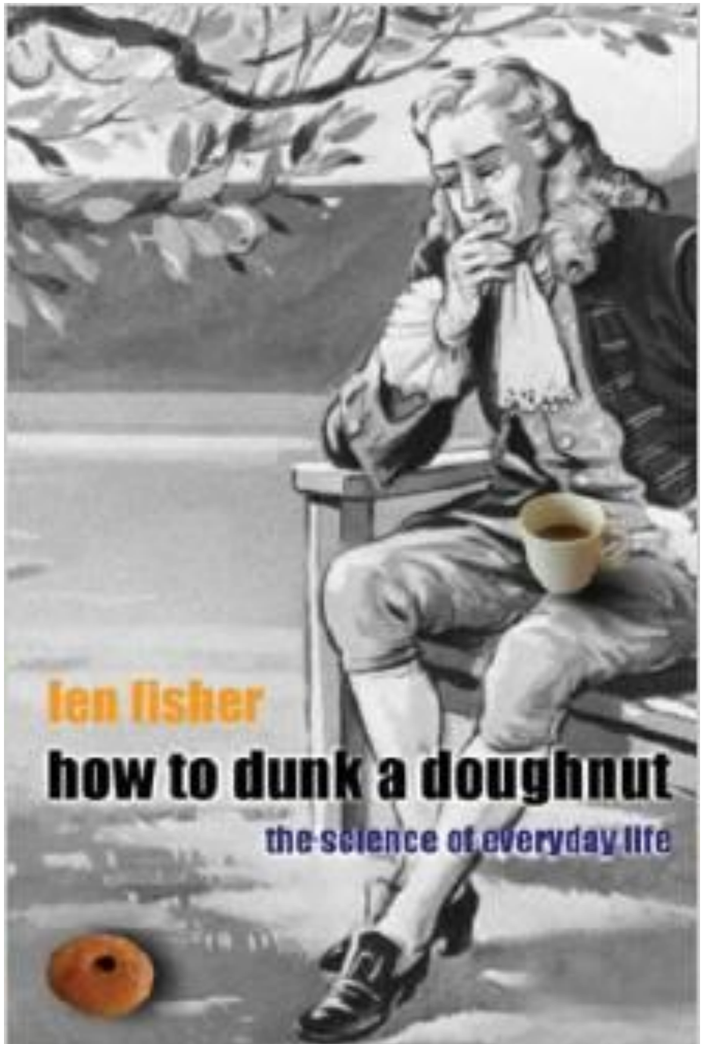




No product allocation !!!!

Ig Nobel Physics, 1999: Presented to Dr. Len Fisher of Bath, England and Sydney, Australia for calculating the optimal way to dunk a biscuit.[42] Also, to Professor Jean-Marc Vanden-Broeck of the University of East Anglia, England, and Belgium, for calculating **how to make a teapot spout that does not drip**.

Dunking a biscuit

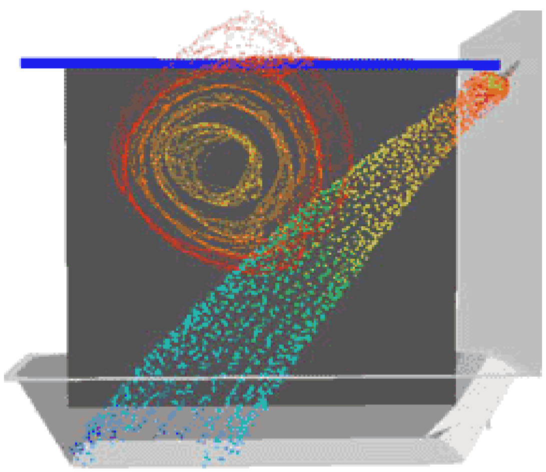


In 1998 Len Fisher attracted world-wide attention with his experiments on the physics of biscuit dunking. These won him a spoof 'IgNobel Prize', a letter of commendation from the royal society and a nomination as 'an enemy of the people' by the Times newspaper. In this funny, fascinating and accessible book the author tells the true stories behind this and other projects, taking a scientific look at the familiar and the everday as a way of opening the door to science, and showing, from an insider's viewpoint, what it feels like to be a scientist, what things scientists do, why they do it and how they go about it.

Ig Nobel Physics, 2001: Presented to David Schmidt of the University of Massachusetts, for his partial explanation of the shower-curtain effect: a shower curtain tends to billow inwards while a shower is being taken

In physics, the **shower-curtain effect** is the phenomenon in which a shower curtain gets blown inward with a running shower. The problem of the cause of this effect has been featured in Scientific American magazine, with several theories given to explain the phenomenon but no definite conclusion.

Why does the shower curtain move toward the water?



SHOWER SIMULATION shows how a vortex forms, creating a pressure drop and sucking the curtain toward the water.

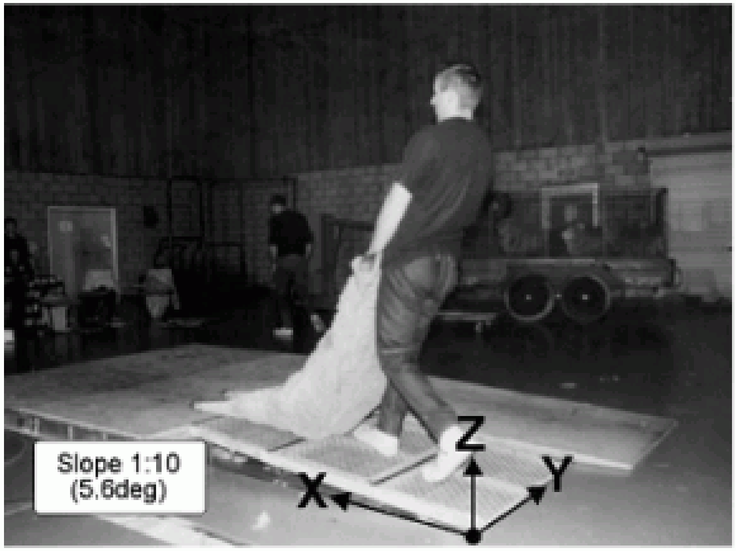
Ig Nobel Physics, 2002: Presented to Arnd Leike of the Ludwig Maximilian University of Munich, for demonstrating that **beer froth obeys the mathematical law of exponential decay.**

"Demonstration of the Exponential Decay Law Using Beer Froth," Arnd Leike, European Journal of Physics, vol. 23, January 2002, pp. 21-26

2003 Ig Nobel PHYSICS: Jack Harvey, John Culvenor, Warren Payne, Steve Cowley, Michael Lawrance, David Stuart, and Robyn Williams of Australia, for their irresistible report "An Analysis of the Forces Required to Drag Sheep over Various Surfaces."

PUBLISHED IN: Applied Ergonomics, vol. 33, no. 6, November 2002, pp. 523-31.2003

Some occupational health and safety hazards associated with sheep shearing are related to shearing shed design. One aspect is the floor of the catching pen, from which sheep are caught and dragged to the shearing workstation. Floors can be constructed from various materials, and may be level or gently sloping. An experiment was conducted using eight experienced shearers as participants to measure the force exerted by a shearer when dragging a sheep. Results showed that significant changes in mean dragging force occurred with changes in both surface texture and slope. The mean dragging forces for different floor textures and slopes ranged from 359 N (36.6 kg) to 423N (43.2 kg), and were close to the maximum acceptable limits for pulling forces for the most capable of males. The best floor tested was a floor sloped at 1:10 constructed of timber battens oriented parallel to the path of the drag, which resulted in a mean dragging force 63.6N (15%) lower than the worst combination.



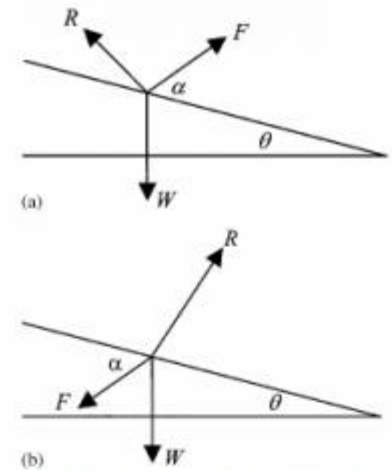
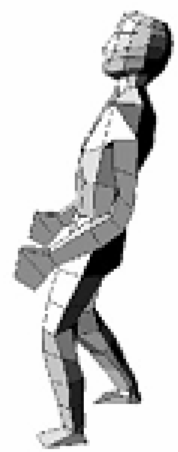


Fig. 3. Force diagrams. (a) Forces on Sheep. (b). Forces on Shearer. F= dragging force; R= ground reaction; W= weight; θ= angle of inclination of floor; α= angle of inclination of drag to floor.

They also put together a biomechanical model



(Though I wish they had also included a model sheep)

Shearers suffer six times more workplace injuries than the Australian average.

Ig Nobel Physics, 2004: Presented jointly to Ramesh Balasubramaniam of the University of Ottawa, and Michael Turvey of the University of Connecticut and Haskins Laboratory, for exploring and explaining the **dynamics of hula-hooping**.

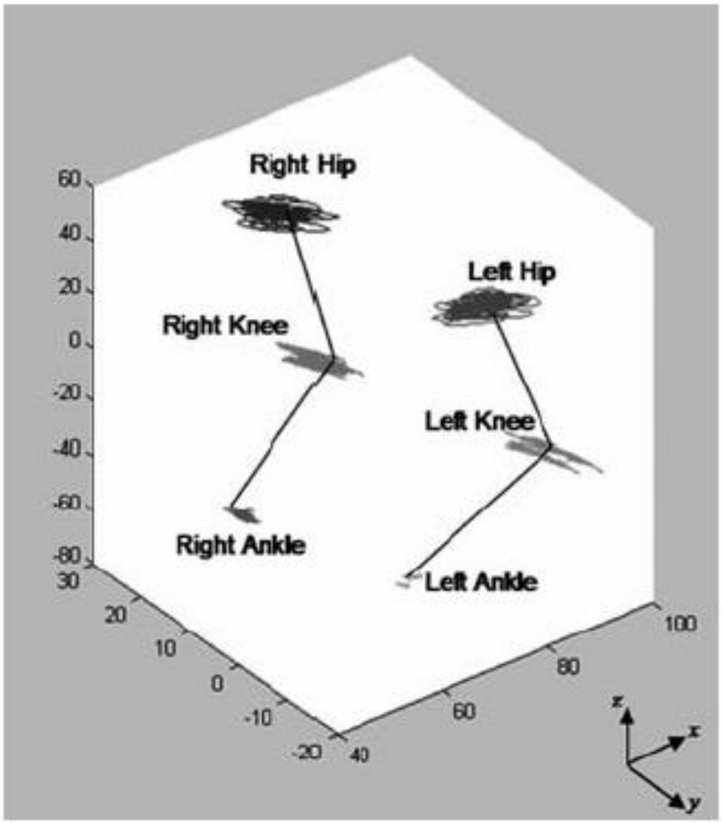


Fig. 1. Three-dimensional plot of the displacements in x, y, and z directions for a participant engaged in hula hooping for 20 s

Biol. Cybern. (2004)
DOI 10.1007/s00422-004-0460-z

Biological Cybernetics

Coordination modes in the multisegmental dynamics of hula hooping

Ramesh Balasubramaniam[1,2], **M.T. Turvey**[2,3]

[1]Sensory Motor Neuroscience Group, Behavioural Brain Sciences Centre, School of Psychology, University of Birmingham, Edgbaston, B15 2TT, UK
[2]Center for the Ecological Study of Perception and Action, U-20 University of Connecticut, 406 Babbidge Road, Storrs, CT 06269, USA
[3]Haskins Laboratories, 270 Crown Street, New Haven, CT 06511, USA

Received: 16 April 2003 / Accepted: 8 December 2003 / Published online: 12 March 2004

Abstract. In hula hooping, organized motions of the body keep the hoop in stable oscillatory motion parallel to the ground. We examined the hypothesis that the multiple degrees of freedom (DF) of the lower limbs in producing the oscillations are resolved into a few control DF. The Karhunen-Loève decomposition was applied to the kinematics of the lower limbs in three experiments in which oscillation amplitude and frequency were manipulated. Kinematic variance was accommodated by two modes whose relative contributions varied with task parameters. Complementary analyses of interjoint Hilbert relative phase suggested a lower-limb organization into a vertical suspension mode and an oscillatory fore-aft mode. These modes might stabilize the hoop's angular momentum by controlling, respectively, its vertical and horizontal components.

1 Introduction

The systematic coordination of multiple body segments characterizes everyday activities such as walking, swimming, reaching, and manipulating. Frequently, these multiple segments are constrained to perform tasks that involve balancing or controlling unstable objects as in riding a bicycle, for example, or even writing with a pencil. In such cases, the equations of motion of the object controlled through spatial and temporal changes in segmental organization are either unknown or not well understood.

"Hula hooping" is a complex skill in which an unstable object, a hoop, is kept in steady oscillation parallel with the ground plane by means of coordinate oscillations of the body. The physical basis of the skill is the conservation of angular momentum. In manipulating the hoop, the performer exerts small but carefully regulated impulses (where impulse equals force × time) by allowing the body to impinge on a small portion of the interior periphery of a short section of the hoop. The subtle application of impulses produces changes in the angular momentum of the hoop. If the impulse forces are so directed that there is a small vertical component of this momentum opposing the force of gravity (which acts uniformly over the plane of the hoop), then the resulting horizontal motion will be maintained.

Generalizations of the skill of hula hooping entail variations in the size of the hoop, the frequency of hoop oscillations, the segment of the body about which the hoop oscillates (e.g., neck, chest, waist), and the number of hoops oscillated simultaneously. In the skill's most common form, hoop oscillations occur about the waist and involve concurrent oscillatory motions of the hips, knees, and ankles. The achievement of a particular pattern of sustained, coupled oscillations about these joints is key in the maintenance of the hoop in dynamic equilibrium. A systematic analysis of the act of balancing a hoop at the waist through movements of the lower limbs may be an ideal candidate, therefore, for understanding the strategies used by the central nervous system in (a) controlling an unstable object and (b) constraining multiple degrees of freedom in order to sustain a particular pattern of oscillations about several joints.

The starting point for the present research is the hypothesis that the control basis for a skilled behavior is of reduced dimensionality relative to the number of dimensions needed to express the behavior's kinematics. The goal of the research was to resolve the number of lower-limb coordination modes required for successful hula hooping under variations in hoop size and oscillation frequency. The research can be viewed as spadework for identifying the task's functional description thus adding to our knowledge of the nature of control structures for coordination and how the variability of these structures or manifolds might be actively or

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(e-mail: r.balasubramaniam@bham.ac.uk,
Tel.: +44-121-4143683, Fax: +44-121-4144897)

- **Ig Nobel Physics, 2006:** Presented jointly to John Mainstone and Thomas Parnell of the University of Queensland, Australia, for patiently conducting the so-called pitch drop experiment that began in the year 1927 — in which a glob of congealed black tar pitch has been slowly dripping through a funnel, at a rate of approximately one drop every nine years.

The University of Queensland pitch drop experiment, featuring its current custodian, Professor John Mainstone (in 1990, two years into the eighth drop), deceased in 2014;. April 2013 9th drop

Date	Event	Duration (Months)	Duration (Years)
1927	Experiment set up		
1930	The stem was cut		
December 1938	1st drop fell	96-107	8.0-8.9
February 1947	2nd drop fell	99	8.3
April 1954	3rd drop fell	86	7.2
May 1962	4th drop fell	97	8.1
August 1970	5th drop fell	99	8.3
April 1979	6th drop fell	104	8.7
July 1988	7th drop fell	111	9.3
28 November 2000	8th drop fell	148	12.3

The most exciting video about **nothing happenning**

Pitch-Tar Drop, School of Physics, Trinity College Dublin.mp4

Based on the results from this experiment, the Trinity College physicists estimated that the viscosity of the pitch is about two million times that of honey, or about 20 billion times the viscosity of water

Ig Nobel Physics, 2007: L. Mahadevan and Enrique Cerda Villablanca for their theoretical study of **how sheets become wrinkled**

Cerda, E.; Mahadevan, L. (1998). "Conical Surfaces and Crescent Singularities in Crumpled Sheets". *Physical Review letters* **80** (11): 2358.

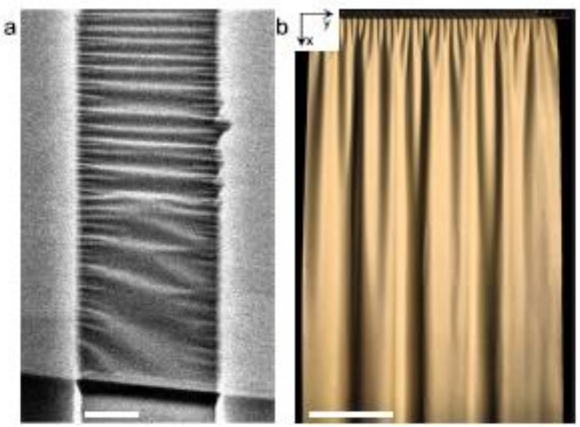


FIG. 1 (color online). (a) Scanning electron microscopy image of suspended graphene bilayer (scale bar is 1 μm). (b) Pattern of folds obtained for a rubber curtain (scale bar is 25 cm).

PRL 106, 224301 (2011)

Wrinkling Hierarchy in Constrained Thin Sheets from Suspended Graphene to Curtains

Ig Nobel Physics, 2008: Dorian Raymer and Douglas Smith, for proving that heaps of string or **hair will inevitably tangle.**

Raymer, Dorian M.; Smith, Douglas E. (16 October 2007). "Spontaneous knotting of an agitated string". *PNAS* (National Academy of Sciences) **104** (42): pp. 16432–7.

Ig Nobel Physics, 2009: Katherine K. Whitcome of the University of Cincinnati, Daniel E Lieberman of Harvard University, and Liza J. Shapiro of the University of Texas, all in the US, for analytically determining why pregnant women **do not tip over**

Whitcome, Katherine K.; Shapiro, Liza J.; Lieberman, Daniel E. (2007). "Fetal load and the evolution of lumbar lordosis in bipedal hominins". *Nature* **450** (7172): 1075–1078.

Ig Nobel Physics, 2010: Lianne Parkin, Sheila Williams, and Patricia Priest of the University of Otago, for demonstrating that, on icy footpaths in wintertime, people slip and fall less often **if they wear socks on the outside of their shoes.**

N Z Med J. 2009 Jul 3;122(1298):31-8.

Preventing winter falls: a randomised controlled trial of a novel intervention.

Parkin L, Williams SM, Priest P.

Abstract

AIM:

To investigate the hypothesis that wearing socks over shoes improves traction on icy footpaths.

METHODS:

Randomised controlled trial involving 30 pedestrians (median age 21 years, range 18-70) travelling in a downhill direction on icy public footpaths at two sites in Dunedin, New Zealand. Intervention: different coloured socks applied over normal footwear or usual practice (unadulterated footwear). Primary outcome: difference in mean self-reported slipperiness on a 5-point scale. Secondary outcomes: falls, observer-rated slipperiness, observer-rated confidence, time to descend study slope.

CONCLUSION:

Wearing socks over shoes appears to be an effective and inexpensive method to reduce the likelihood of slipping on icy footpaths.



Auto-sock – hit 2010

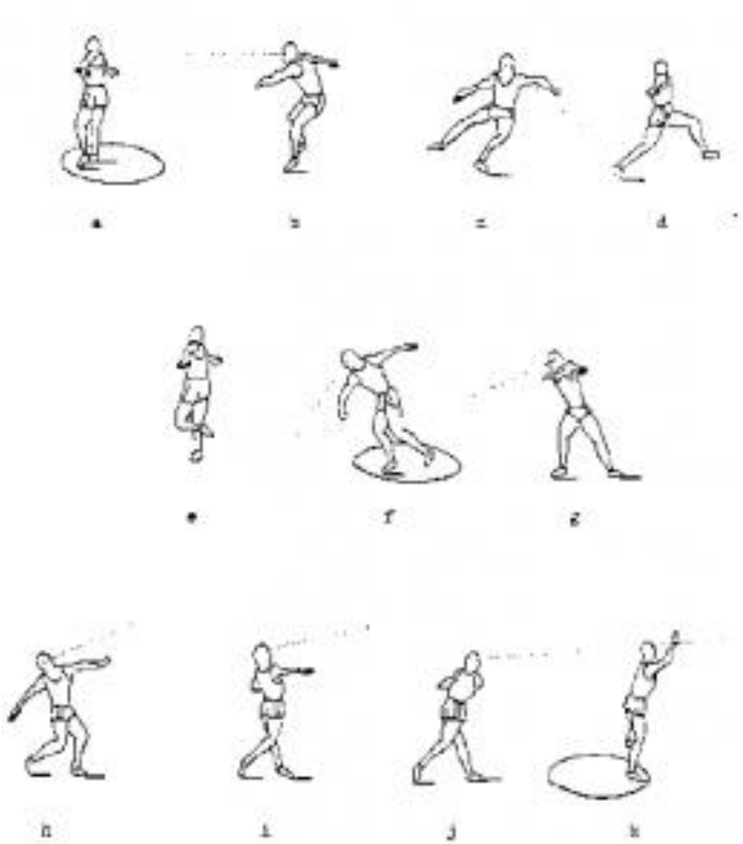
www.autosock.com.pl

Dizziness in discus throwers is related to motion sickness generated while spinning. Discus versus hammer issue.

Ig Nobel Physics 2011

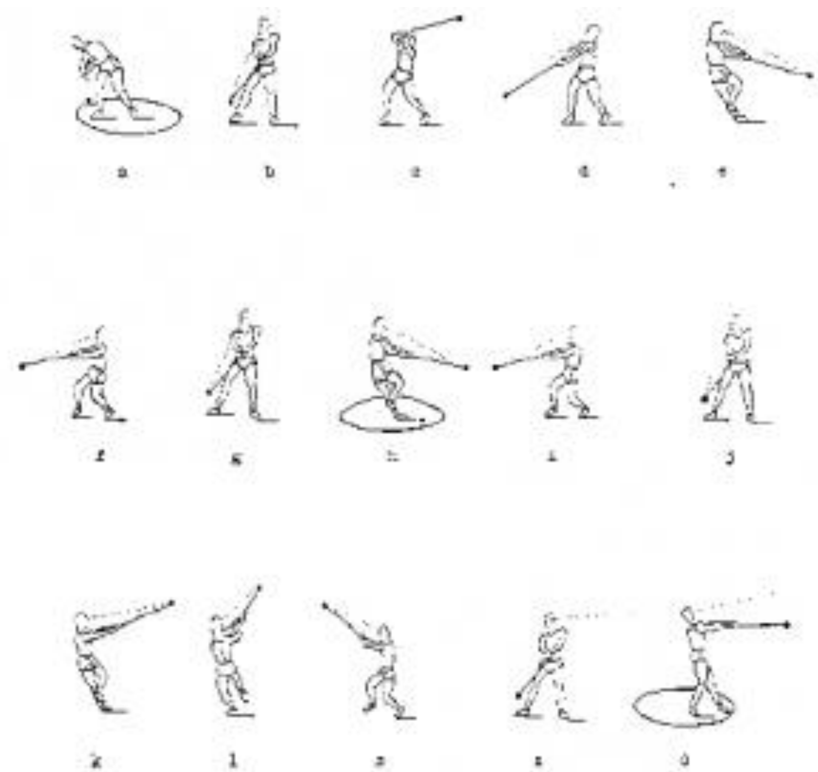
While both discus and hammer throwing involve rotating movements resulting in the throw of an object, discus throwers sometimes report dizziness, a condition never experienced by hammer throwers. We investigated whether this susceptibility was related to the sensitivity of the thrower or to the type of throwing achieved. For the latter, we compared the determining features of gesture, gaze stabilization and projectile trajectory in both sports. A total of 22 high-level sportsmen in these 2 disciplines, half of them practising both sports, were interviewed. Slow motion video recordings of discus and hammer throwing were examined to determine the visual referential, head movements and plantar surface support area involved at each stage of the motions. Discomfort was reported by 59% of the sportsmen while throwing discus, but by none while throwing hammer. Because several individuals practised both sports, these results exclude the hypothesis of individual susceptibility to dizziness.

In conclusion, although hammer and discus-throwing present numerous similarities, we demonstrate here that crucial differences in the specific execution of each sport are responsible for the dizziness experienced by discus throwers.



Olympics 2004- Hammer Throw.mp4

Discus Throw Technique.mp4



The scientists then analyzed the VIDEOS of everyone throwing the discus and the hammer, breaking down the movements and steps to see what was involved and try to figure out why this might be the case. And what they got was a difference in something I immediately identified as spotting. If any of you out there have ever been trained in dance (ballet, jazz, anything with turns), you'll know what spotting is. When you see those dancers whirling around the stage and somehow never falling over, what they are doing is spotting. When you turn, your body whips around in one continuous motion, and if your head went with it, you'd get dizzy very quickly. In order to prevent this, dancers spot, fixing their eyes on a single point across the room and moving their head FASTER than the rest of them.

Insight Ballet Glossary - Spotting.mp4

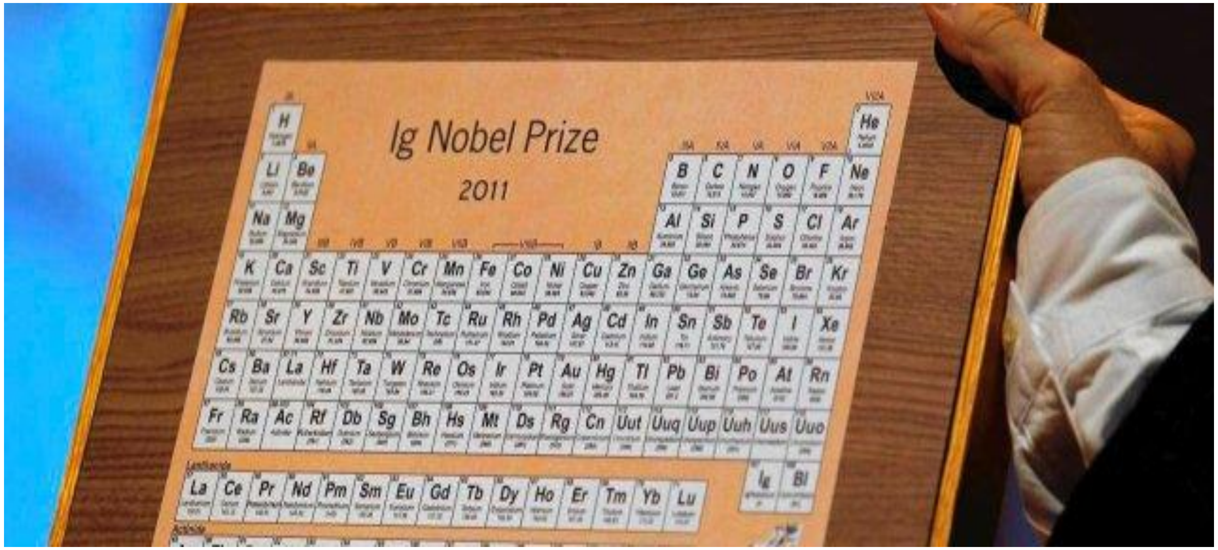
The net result of this is that the head moves in fits and starts, jerking around quickly once while the body turns slower. Since you're fixing your eyes on a single point over and over and over again, you are able to fool your brain into thinking you're moving in straight line rather than in a bunch of tight circles, and it thus takes a lot longer for a dancer to become dizzy while turning than you might expect. And it turns out that the same is true for hammer throwers. In contrast, discus throwers, though they do fix their gaze, do it in only two of the steps in their routine, and thus "spot" a lot less, making it more likely that they will become dizzy.

Annexes :

2011 Ig Nobel: Mathematics. Bad times for prophets and fortune-tellers .

Seven contemporary prophets have been awarded for their wrong predictions of the End of the World sharp date. In this number Pat Robertson (USA, world end prophetized for 1982), Credonie Mwerind (Uganda. 1999) , Harold Camping (USA , first Armageddon date was 6 Sept. 1994, next End on 21 Oct. 2011 r. - Ig Nobel ceremony was held on 29 Sept 2011 !!!).

According to the Jury, there was a great message to the whole World, hidden in the profets misfortunes: be careful about too serious, albeit purely formal math reasoning or modelling of the complex world . Dedicated to stock brokers and heads of central banks who often behave like self-indoctrinated prophets.



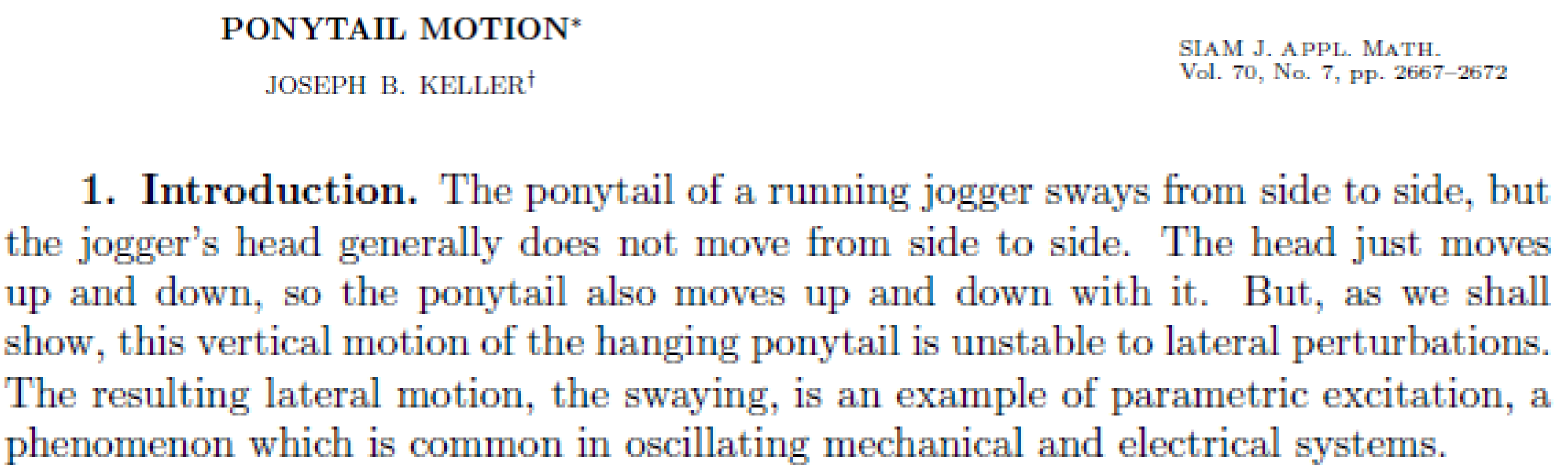
2011 Ig Nobel: Peace award: tanks mitigate bad (parking) habits

For the Vilnius (Lithuania) Mayor, who personally drives the military transporter, as an executor. No fines, no towage, a simple destruction as an ultimate solution aand good habit lesson. The Mayor as the Terminator.

[Shape of a Ponytail and the Statistical Physics of Hair Fiber Bundles](#) **Physics 2012**

Raymond E. Goldstein, Patrick B. Warren, and Robin C. Ball

Phys. Rev. Lett. **108**, 078101 (2012)


PONYTAIL MOTION*

JOSEPH B. KELLER†

SIAM J. APPL. MATH.
Vol. 70, No. 7, pp. 2667–2672

1. Introduction. The ponytail of a running jogger sways from side to side, but the jogger's head generally does not move from side to side. The head just moves up and down, so the ponytail also moves up and down with it. But, as we shall show, this vertical motion of the hanging ponytail is unstable to lateral perturbations. The resulting lateral motion, the swaying, is an example of parametric excitation, a phenomenon which is common in oscillating mechanical and electrical systems.

Why study the shape of hair?

- Hair has fascinated artists and scientists for centuries:
  - "Observe the motion of the surface of the water which resembles that of hair, and has two motions, of which one goes on with the flow of the surface, the other forms the lines of the eddies..." - Leonardo Da Vinci[1]
  - "Rapunzel, Rapunzel, let down your hair, so that I may climb the golden stair." - The Witch
- Studies on ponytail motion have modeled the ponytail as a pendulum or flexible string[2]. <u>But a ponytail is not a piece of string.</u>

1. *The Notebooks of Leonardo da Vinci*, edited by J. P. Richter (Dover, London, 1989).
2. J. B. Keller, SIAM J. Appl. Math. 70, 2667 (2010).

http://imgc.allpostersimages.com/images/P-473-488-90/62/6291/CVV5100Z/posters/leonardo-da-vinci-head-hair-and-costume-studies-for-leda-art-poster-print.jpg

How do individual fibers determine the shape of a ponytail?

- This is a problem of statistical mechanics: There are $O(10^5)$ hairs...

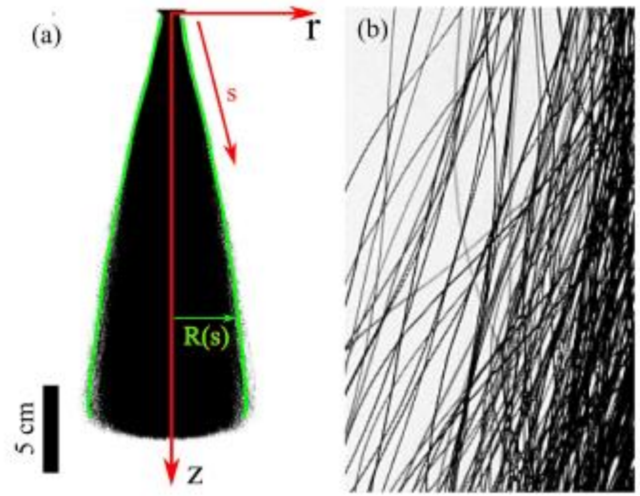


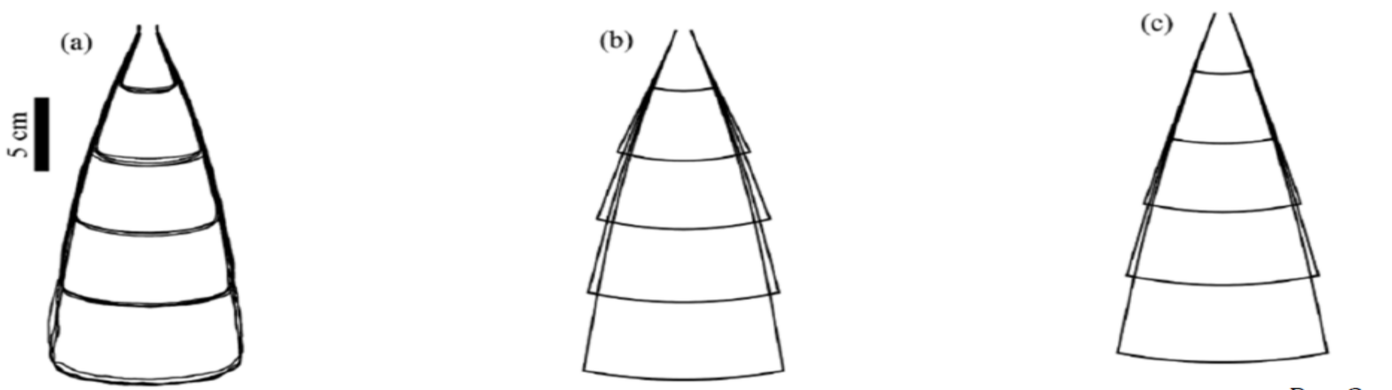
FIG. 1: (color online) A ponytail. (a) Rotationally-averaged image of a switch of $N \approx 9500$ fibers, approximately 25 cm long. Coordinate system for envelope shape $R(s)$ in terms of arc length $s(z)$. (b) Meanderings of hairs near ponytail edge.

Answering the Question

- General continuum theory for the distribution of hairs in a bundle
- Consider envelope rather than individual hairs
- Consider combined effects of gravity, elasticity, orientational disorder and tension
- Experimentally determine an equation of state

Raymond Goldstein of the University of Cambridge, UK, and his colleagues obtained human hair switches (a type of commercially available hairpiece) and measured the random curvature (or curliness) of a sample of individual hairs. They then assembled different ponytails all about 25centimeters long and recorded the average shape. This data helped in the formulation of an equation of state that balanced four competing effects: gravity, tension, an elastic restoring force, and a swelling pressure coming from the curliness. The model correctly predicted the shape of ponytails as the lengths of the switches were progressively shortened. The authors believe their surprisingly simple equation of state could be used to study other hair styles, as well as dynamic problems like a swinging ponytail.

Verification of the Theory for Varying Length



Hair Switches

$$\Pi(R) = \Pi_0(1 - \frac{R}{R^*})$$

$$\Pi(R) = \Pi_0\left(1 - \frac{R}{R^*}\right)\left(\frac{2\,s}{L^*}\right)$$

Ponytail envelope versus length cut down from 25 cm in steps of 5 cm. A) Experimental envelope shape. B) Predicted envelope and C) with extra compactification.

2013 Ig Nobel PHYSICS: Alberto Minetti [ITALY, UK, DENMARK, SWITZERLAND], Yuri Ivanenko [ITALY, RUSSIA, FRANCE], Germana Cappellini [ITALY], Nadia Dominici [ITALY, SWITZERLAND], and Francesco Lacquaniti [ITALY], for discovering that some people would be physically capable of running across the surface of a pond — if those people and that pond were on the moon.

REFERENCE: "Humans Running in Place on Water at Simulated Reduced Gravity," Alberto E. Minetti, Yuri P. Ivanenko, Germana Cappellini, Nadia Dominici, Francesco Lacquaniti, PLoS ONE, vol. 7, no. 7, 2012, e37300.

Here we use a hydrodynamic model to predict the gravity levels at which humans should be able to run on water. We test these predictions in the laboratory using a reduced gravity simulator.

2013 FLUID DYNAMICS PRIZE: Rouslan Krechetnikov [USA, RUSSIA, CANADA] and Hans Mayer [USA] for studying the dynamics of liquid-sloshing, to learn what happens when a person walks while carrying a cup of coffee.

REFERENCE: "Walking With Coffee: Why Does It Spill?" Hans C. Mayer and Rouslan Krechetnikov, Physical Review E, vol. 85, 2012, 046117

In our busy lives, almost all of us have to walk with a cup of coffee. While often we spill the drink, this familiar phenomenon has never been explored systematically. Here we report on the results of an experimental study of the conditions under which coffee spills for various walking speeds and initial liquid levels in the cup. These observations are analyzed from the dynamical systems and fluid mechanics viewpoints as well as with the help of a model developed here. Particularities of the common cup sizes, the coffee properties, and the biomechanics of walking proved to be responsible for the spilling phenomenon. The studied problem represents an example of the interplay between the complex motion of a cup, due to the biomechanics of a walking individual, and the low-viscosity-liquid dynamics in it.

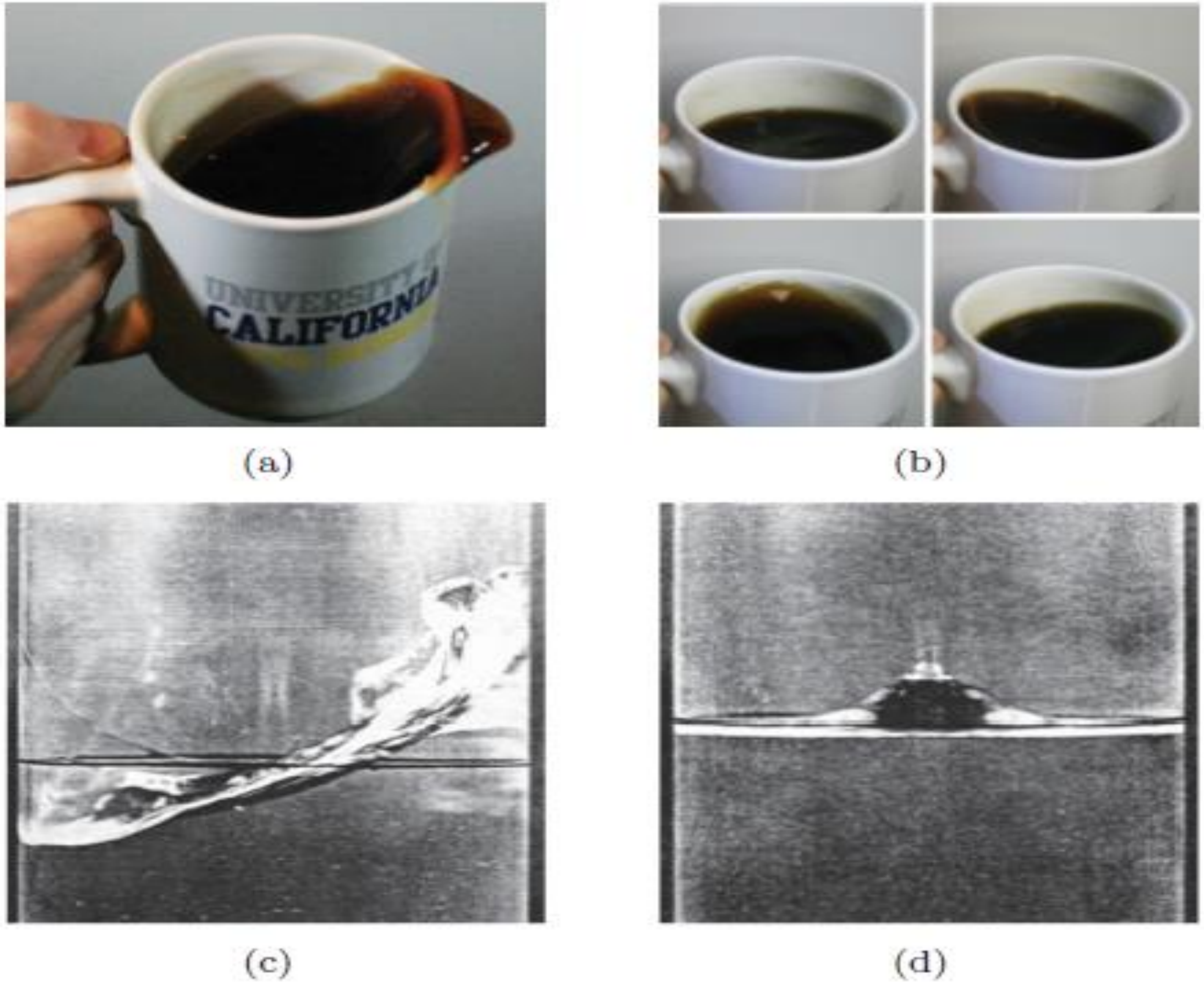


FIG. 1. (Color online) Coffee spill and key liquid motions in an excited cup. (a) Representative image of coffee spilling. (b) Rotational liquid motion in clockwise direction: top left–top right–bottom left–bottom right. (c) Back-and-forth liquid oscillations (photograph from [1]). (d) Vertical liquid oscillations (photograph from [1]).

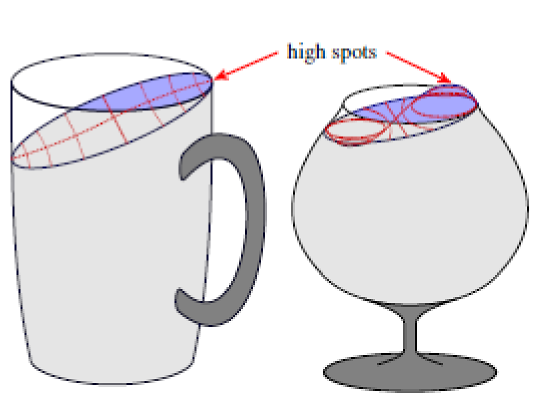
SPILLING FROM A COGNAC GLASS

TADEUSZ KULCZYCKI, MATEUSZ KWAŚNICKI, AND BARTŁOMIEJ SIUDEJA

1. INTRODUCTION

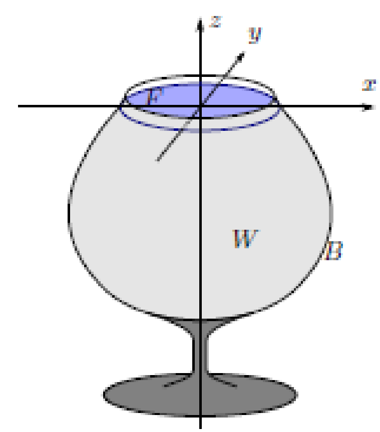
The 2012 Ig Nobel Fluid Dynamics Prize was awarded to R. Krechetnikov and H. Mayer for their study of people walking while carrying a filled coffee mug [25]. They show that coffee spills so often because the sloshing mode with the lowest-frequency (most noticeable in practice) in a typical coffee mug tends to get excited during walking. Authors model oscillations of the coffee as appropriate mixed Steklov problem.

However, there is another reason for spilling from a mug: *high spot* on the boundary. The maximal elevation of the lowest-frequency liquid oscillation in a typical coffee mug is located on the boundary (see Figure 1a). This effect, proved rigorously by Kulczycki and Kwaśnicki [22], makes spilling even easier. On the other hand, in a bulbous snifter the lowest-frequency sloshing mode attains its maximal elevation (high spot) inside a snifter [22], reducing the risk of spilling (see Figure 1b).



(A) A cup. (B) A snifter.

FIGURE 1. High spots in a coffee cup and a snifter.



No connisseur would drink cognac that way !!! But I had in hands a Russian gift cup (some 0.4 l) with an instruction „to drink wine, cognac , vodka , beer ”

2014 Ig Nobel PHYSICS [JAPAN]: Kiyoshi Mabuchi, Kensei Tanaka, Daichi Uchijima and Rina Sakai, for measuring the amount of friction between a shoe and a banana skin, and between a banana skin and the floor, when a person steps on a banana skin that's on the floor.

REFERENCE: "Frictional Coefficient under Banana Skin," Kiyoshi Mabuchi, Kensei Tanaka, Daichi Uchijima and

We measured the frictional coefficient under banana skin on floor material. Force transducer with six degrees of freedom was set under a flat panel of linoleum. Both frictional force and vertical force were simultaneously measured during a shoe sole was pushed and rubbed by a foot motion on the panel with banana skin. Measured frictional coefficient was about 0.07. This was much lower than the value on common materials and similar one on well lubricated surfaces. By the microscopic observation, it was estimated that polysaccharide follicular gel played the dominant role in lubricating effect of banana skin after the crush and the change to homogeneous sol.

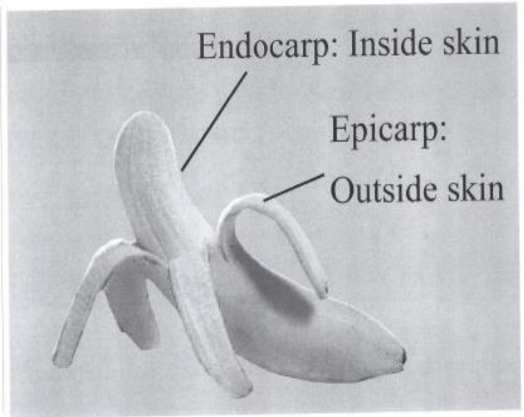
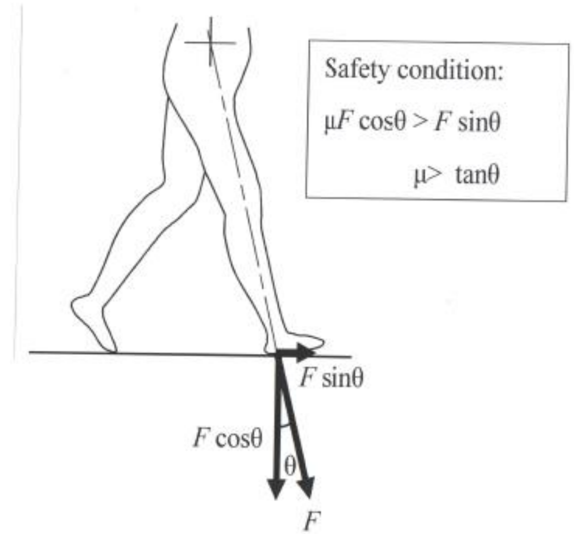


Fig. 1 Cavendish banana, *Musa* spp



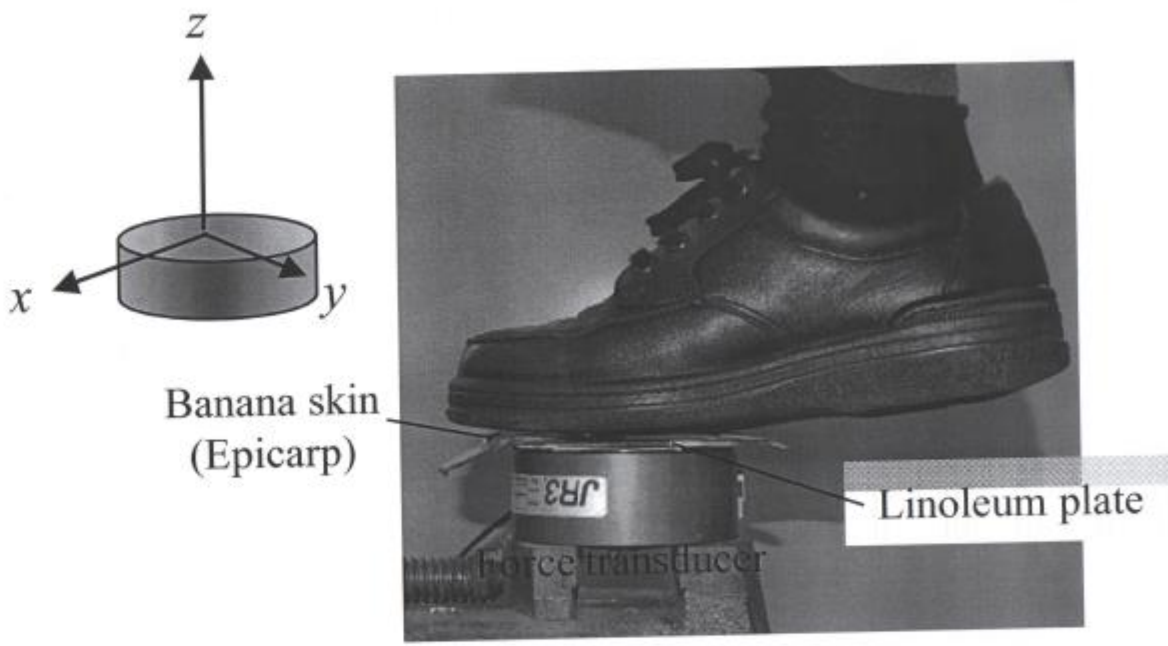
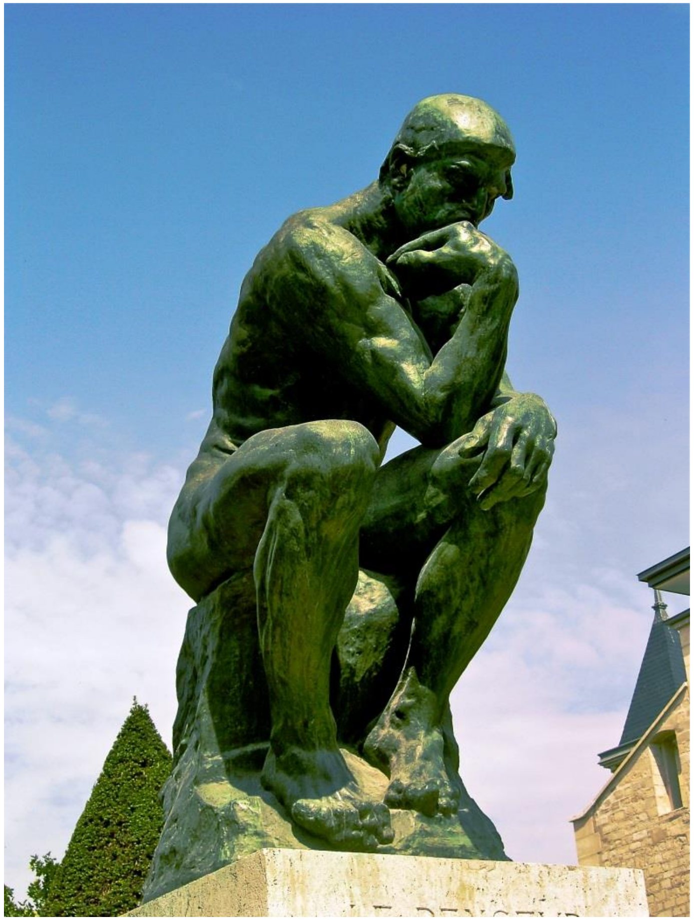


Fig. 2 Experimental set up with the coordinate of the detected forces



The Thinker

"The Stinker", the official mascot of the Ig Nobel Prizes.

Stinker: (i) person who arouses a strong dislike, (ii) atrociously smelling person, (iii) extremely difficult task (devil's task)

ANNEX: Uses of hot wine in physics (no cinnamon nor clove)

Supercond. Sci. Technol. **24** (2011) 055008 (4pp)

Alcoholic beverages induce superconductivity in $FeTe_{1-x}S_x$

K Deguchi[1,2,3], Y Mizuguchi[2,3], Y Kawasaki[1,2,3], T Ozaki[1,3], S Tsuda[1,3], T Yamaguchi[1,3] and Y Takano[1,2,3]

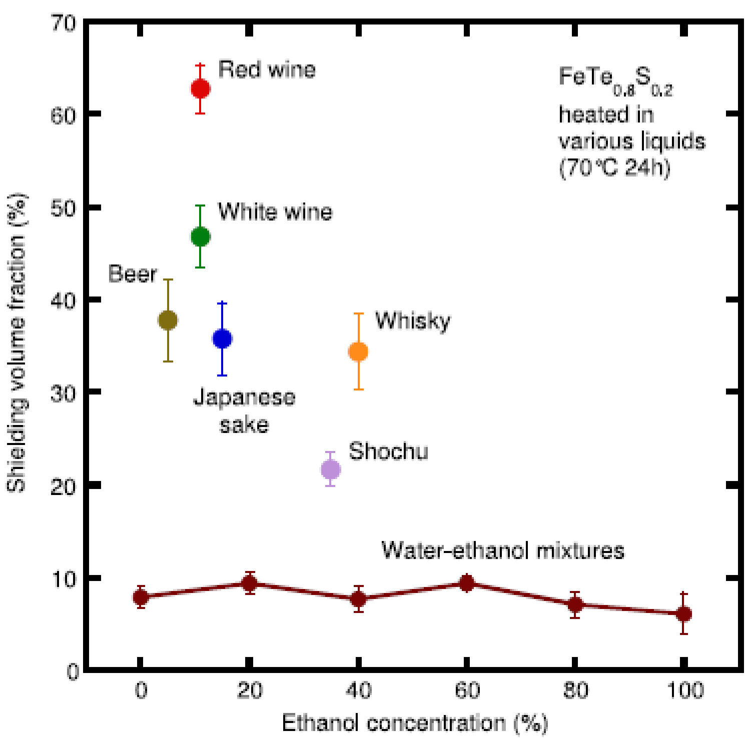


Figure 2. The shielding volume fraction of $FeTe_{0.8}S_{0.2}$ samples heated in various liquids as a function of ethanol concentration.

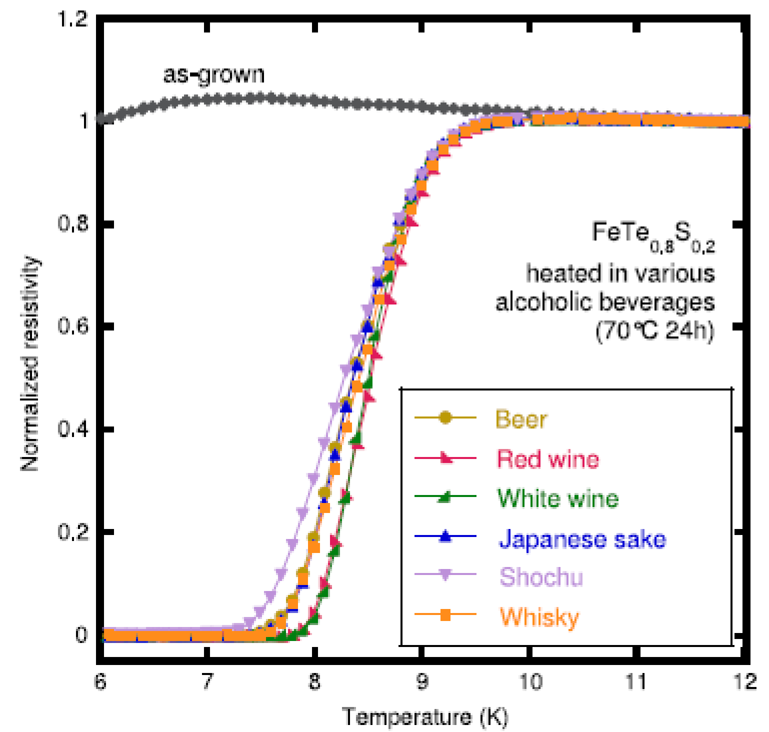


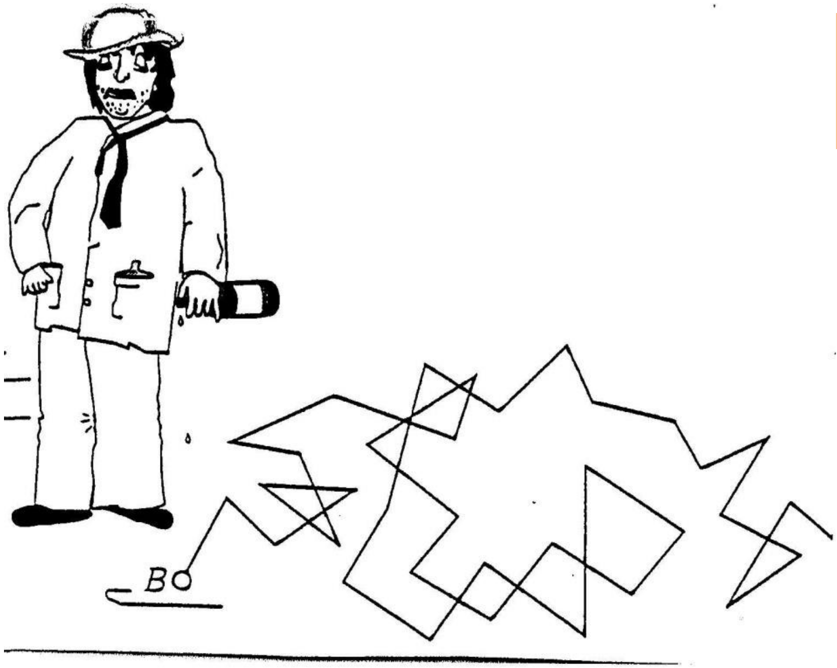
Figure 3. Temperature dependence of normalized resistivity below 12 K for the as-grown sample and the samples heated in various alcoholic beverages.

Shōchū should not be confused with sake, a brewed rice wine. Its taste is usually far less fruity and depends strongly on the nature of the starch used in the distilling process. Its flavor is often described as "nutty" or "earthy".

Shōchū is drunk in many ways according to season or personal taste:neat, i.e., on its own with nothing added, on the rocks, i.e., mixed with ice, diluted with room temperature or hot water, mixed with oolong tea or fruit juice, as chūhai - a mixed drink consisting of shōchū, soda, ice and some flavoring, often lemon, grapefruit, apple or ume, mixed with a low-alcohol beer-flavored beverage known as hoppy;

In conclusion, we found that hot commercial alcoholic beverages were effective in inducing superconductivity in $FeTe_{0.8}S_{0.2}$ compared to pure water, ethanol and water–ethanol mixtures. The largest shielding volume fraction and the highest T_c^{zero} were achieved by heating the $FeTe_{0.8}S_{0.2}$ sample in red wine. A detailed investigation to clarify the key factor in inducing superconductivity by hot alcoholic beverages is anticipated.

No news about superconducting frogs.
Some dislike of 24 hours bath in a boiling wine ?



Physical inspiration from being drunk

Tests of your understanding

To pursuit the rabbit or to catch the rabbit ?

Walk or run in the rain ? Dunking a biscuit, optimized.

Is that the Red Queen in action, or simply the armament race ? Who the hell, the Red Queen is ?

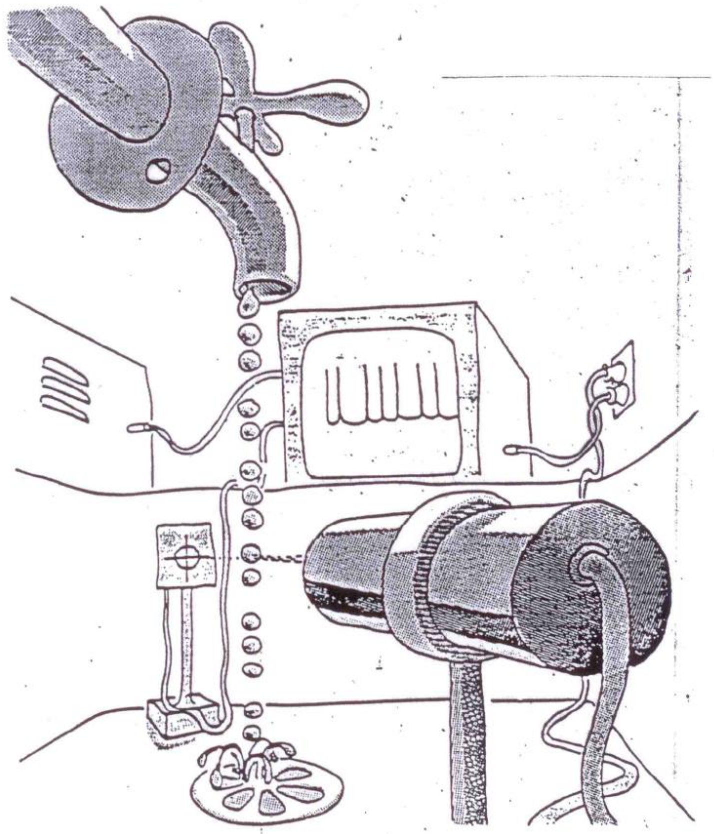
The **Red Queen hypothesis**, also referred to as **Red Queen's**, **Red Queen's race** or **The Red Queen Effect**, is an evolutionary hypothesis which proposes that organisms must constantly adapt, evolve, and proliferate not merely to gain reproductive advantage, but also simply to survive while pitted against ever-evolving opposing organisms in an ever-changing environment.

This could be explained by the coevolution of species. Indeed, an adaptation in a population of one species (e.g. predators, parasites ...) may change the selection pressure on a population of another species (e.g., prey, hosts), giving rise to an antagonistic coevolution.

Lewis Carroll's *Through the Looking-Glass*

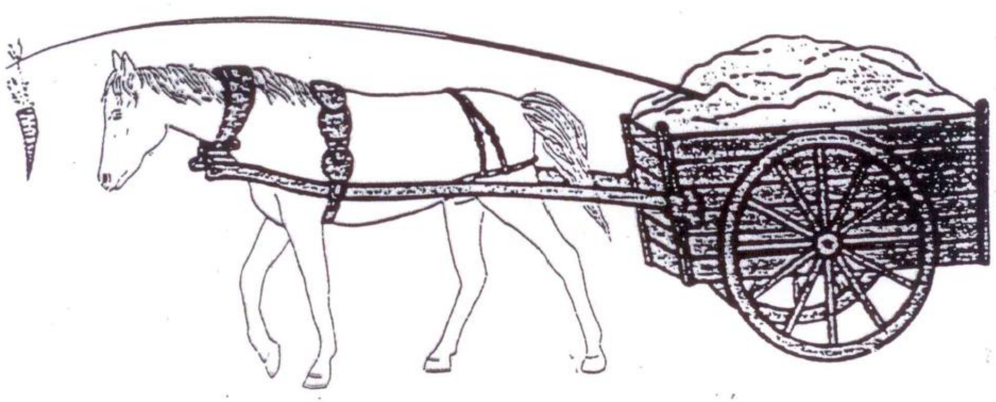
At the top of a hill, the Red queen begins to run, and Alice begins to chase after her. Alice is confused by the fact that even though they are running, they are staying in exactly the same place. Alice asked the queen why this is and the Red Queen remarks, “Now here, you see, it takes all the running you can do to keep in the same place.[9] This is comparable to the evolutionary arms race seen in nature where organisms need to stay constantly evolving to not “lose” the race with their predators or parasites.

Selected meditation topics



Dripping faucet as a source of inspiration ?

Dynamical system for a freshman



Complex dynamical problem for an enthusiast. Sorry, no comments nor hints !!!

The very last quiery: What is this ?

Optional hint: the title of the talk (who remebers ?)

No sooner had the warm liquid mixed with the crumbs touched my palate than a shudder ran through me and I stopped, intent upon the extraordinary thing that was happening to me. An exquisite pleasure had invaded my senses, something isolated, detached, with no suggestion of its origin. And at once the vicissitudes of life had become indifferent to me, its disasters innocuous, its brevity illusory – this new sensation having had on me the effect which love has of filling me with a precious essence; or rather this essence was not in me it was me. ... Whence did it come? What did it mean? How could I seize and apprehend it? ... And suddenly the memory revealed itself. The taste was that of the little piece of madeleine which on Sunday mornings at Combray (because on those mornings I did not go out before mass), when I went to say good morning to her in her bedroom, my aunt Léonie used to give me, dipping it first in her own cup of tea or tisane. The sight of the little madeleine had recalled nothing to my mind before I tasted it. And all from my cup of tea.

Marcel Proust, *In Search of Lost Time, vol 1*

Thank you for your share in the irretrievably lost time . Think about a cup of tea with the madeleine, biscuit, doughnut or else. Find a pleasure in wasting your precious time. That sometimes inspires !!!!