



The Greatest Story Ever Told

Ivan Amato, Journalist in Residence
Kavli Institute for Theoretical Physics
February 19, 2014

Kohn Hall
Kavli Institute for Theoretical Physics

A collaboration of scientists and journalists



MASTERING THE OBVIOUS...

...THERE IS SOMETHING INSTEAD OF NOTHING

*Credit: NASA; ESA; G. Illingworth, D. Magee, and P. Oesch, University of California, Santa Cruz;
R. Bouwens, Leiden University; and the HUDF09 Team)*

So many questions to ask...

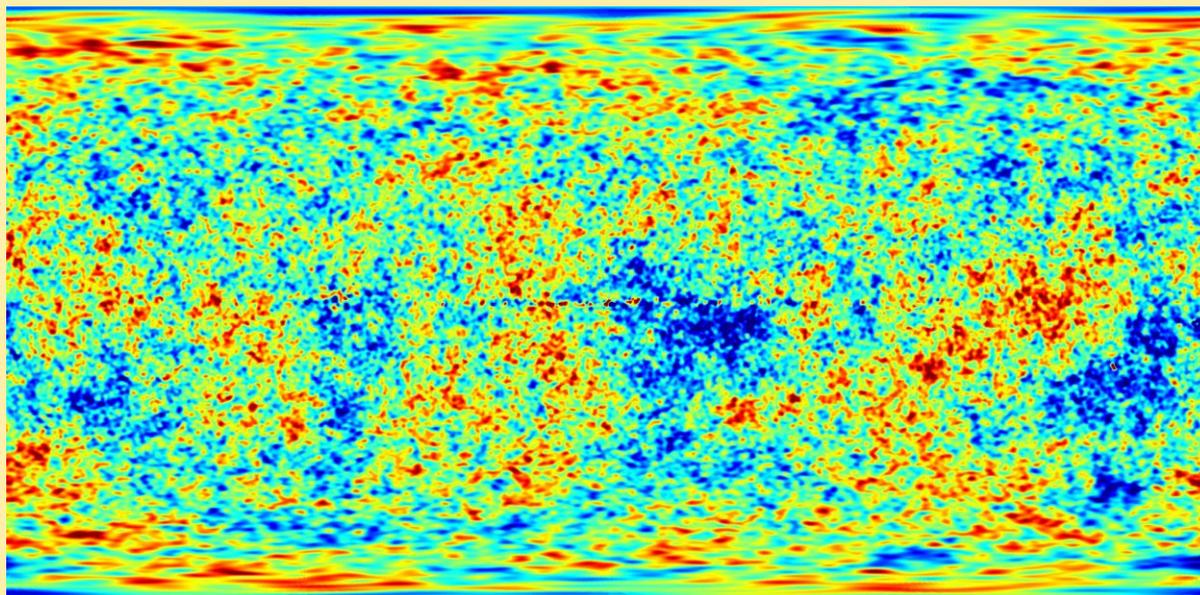
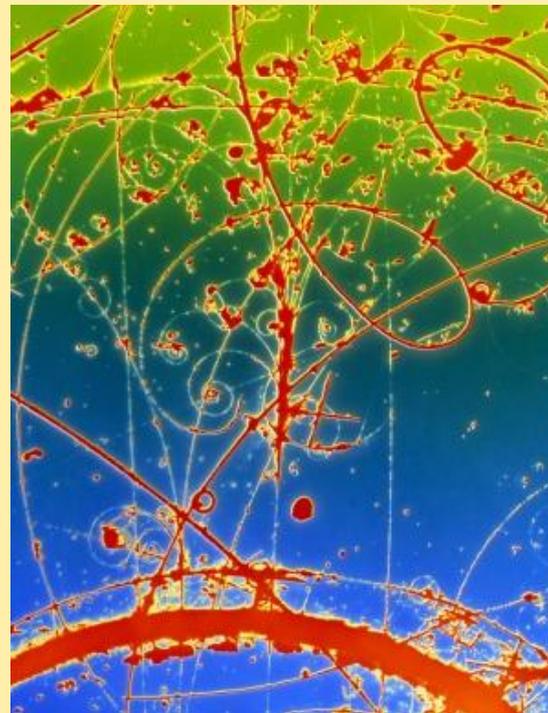
- How did the universe get here?
- What's in the universe?
- How did those things get here?
- Why are those things the way they are?
- What's everything made of?
- How did we get here and what is our place?
- What will come of us and the universe?
- What can we really know about the universe?
- What should we do and how should we behave?
- What does it all mean?
- What is the average air speed of an African swallow?



- ① The scientific way of asking and answering such questions has proven to be fantastically illuminating and empowering.
- ② It's a story packed with high human drama.
- ③ Human beings love good stories.
- ④ Ergo, scientists and journalists often find themselves in collaborative efforts of story telling.

Don't forget this reason for sharing stories about scientific discovery:

One of the greatest gifts scientists give to humanity are invitations to experience awe by revealing how the universe works, from its smallest to largest scales.



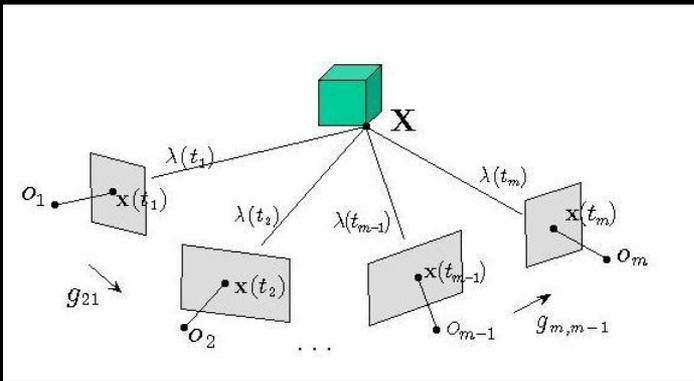


Journalists and scientists sometimes relate to one another like this.....

But this is more like it...

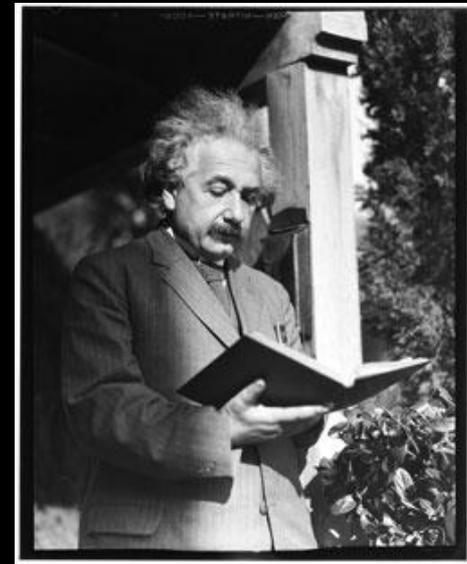


Plato and Aristotle in a close up from Raphael's fresco "The School of Athens"



Three strategic guiding principles can replace a “butting heads model” to a “partnership model”:

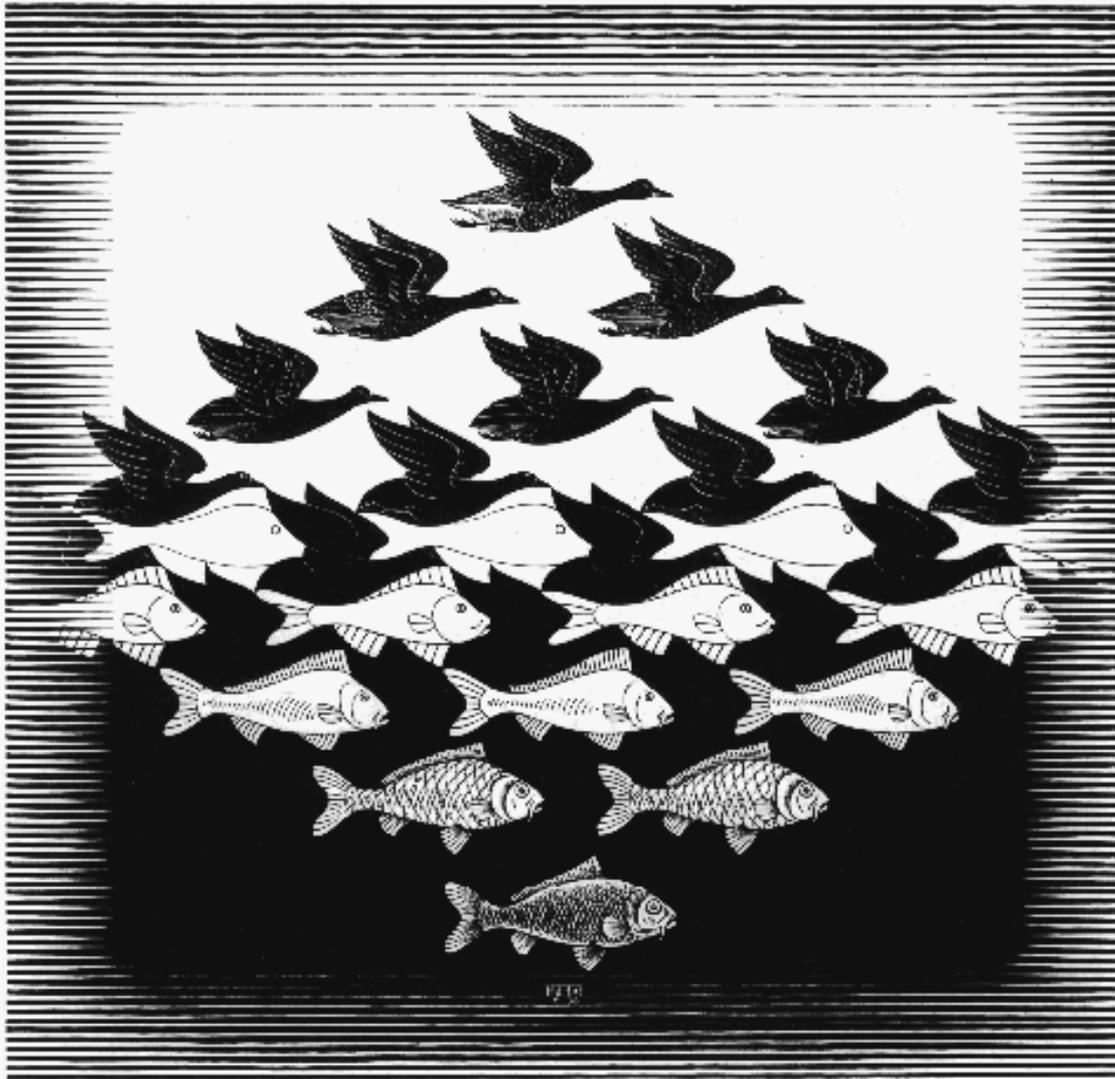
- Adopt the other’s P.O.V. (point of view)
- Remember what it was like to have not known what you know now
- Be kind to the reader/listener/viewer



<http://cs.gmu.edu/~kosecka/Projects.html>

<http://awesomepeoplereading.tumblr.com/post/20173554973/einstein-reads>

<http://healthyliving.msn.com/health-wellness/6-totally-gross-health-treatments>

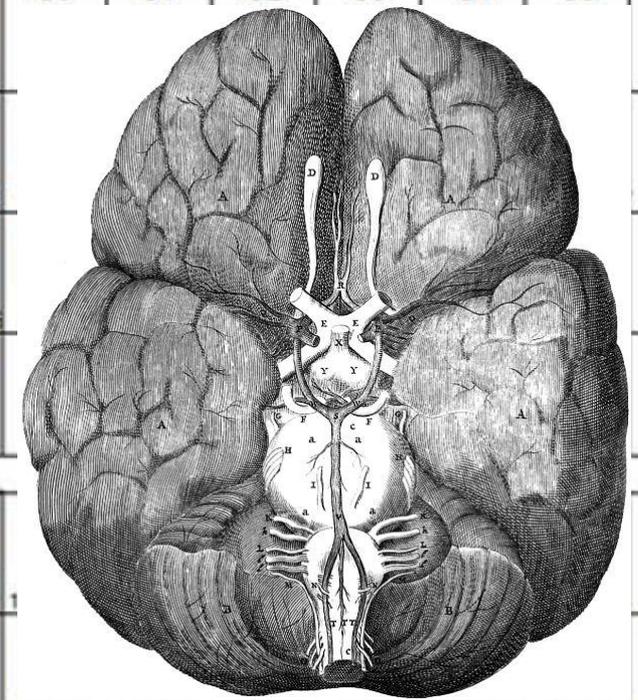


A would-be scientist defects from the lab bench to become a science writer: a case study.

The Periodic Table of the Elements



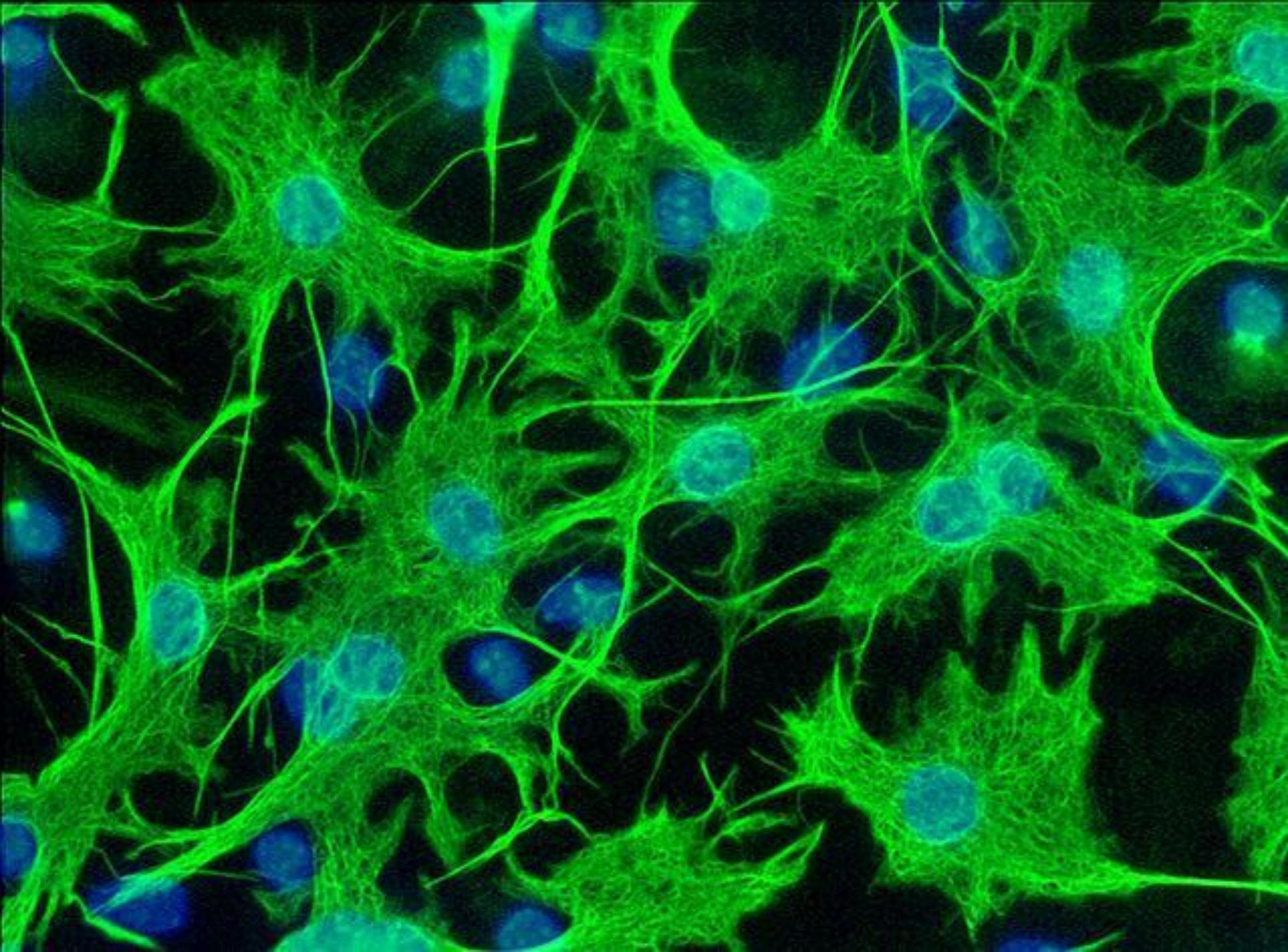
5 B Boron 10.811	6 C Carbon 12.0107	7 N Nitrogen 14.00674	8 O Oxygen 15.9994	9 F Fluorine 18.9984032	10 Ne Neon 20.1797
13 Al Aluminum 26.981538	14 Si Silicon 28.0855	15 P Phosphorus 30.973761	16 S Sulfur 32.066	17 Cl Chlorine 35.4527	18 Ar Argon 39.948

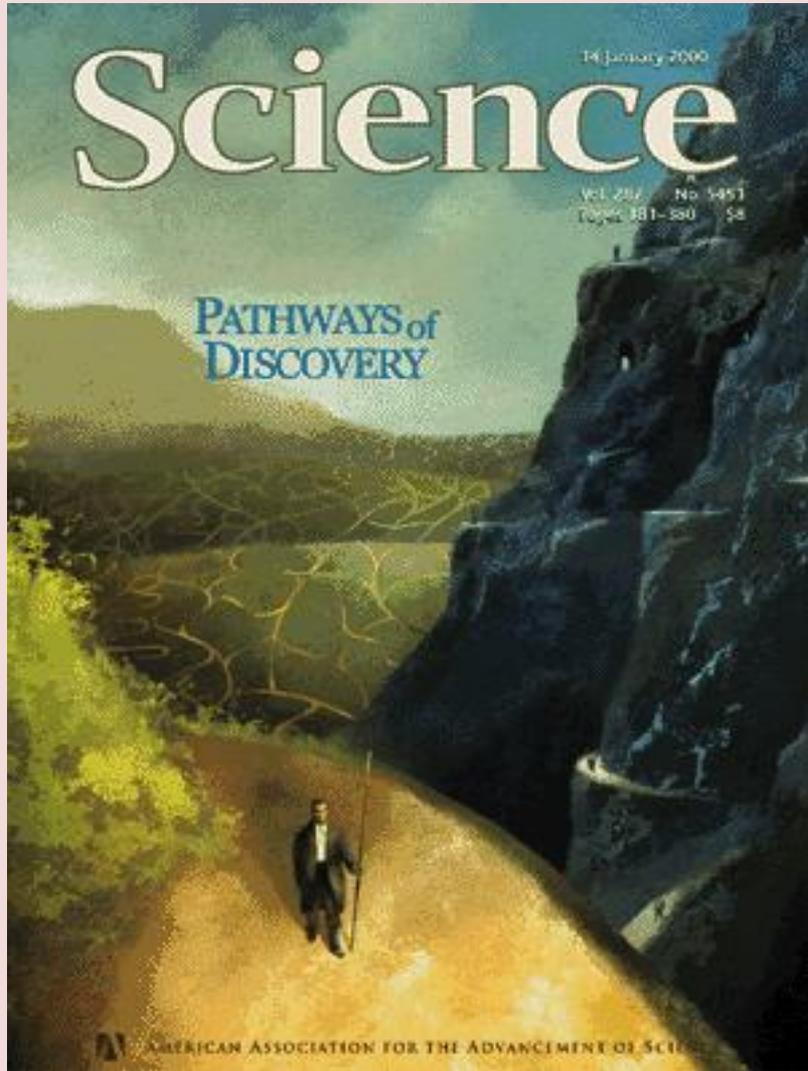


1 H Hydrogen 1.00794																		2 He Helium 4.003	
3 Li Lithium 6.941	4 Be Beryllium 9.012																		10 Ne Neon 20.1797
11 Na Sodium 22.989770	12 Mg Magnesium 24.30																		18 Ar Argon 39.948
19 K Potassium 39.0983	20 Ca Calcium 40.0																		36 Kr Krypton 83.80
37 Rb Rubidium 85.4678	38 Sr Strontium 87.6																		54 Xe Xenon 131.29
55 Cs Cesium 132.90545	56 Ba Barium 137.327	57 La Lanthanum 138.9055	72 Hf Hafnium 178.49	73 Ta Tantalum 180.9479	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.217	78 Pt Platinum 195.078	79 Au Gold 196.96655	80 Hg Mercury 200.59	81 Tl Thallium 204.38	82 Pb Lead 207.2	83 Bi Bismuth 208.98	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)		
87 Fr Francium (223)	88 Ra Radium (226)	89 Ac Actinium (227)	104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Sg Seaborgium (263)	107 Bh Bohrium (262)	108 Hs Hassium (265)	109 Mt Meitnerium (266)	110 (269)	111 (272)	112 Cn Copernicium (285)	113 Nh Nihonium (284)	114 Fl Flerovium (287)	115 Mc Moscovium (288)	116 Lv Livermorium (293)	117 Ts Tennessine (294)	118 Og Oganesson (294)		

58 Ce Cerium 140.116	59 Pr Praseodymium 140.90768	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25
90 Th Thorium 232.0381	91 Pa Protactinium 231.03588	92 U Uranium 238.0289	93 Np Neptunium (237)	94 Pu Plutonium (244)	95 Am Americium (243)	96 Cm Curium (247)

71 Lu Lutetium 174.967	103 Lr Lawrencium (262)
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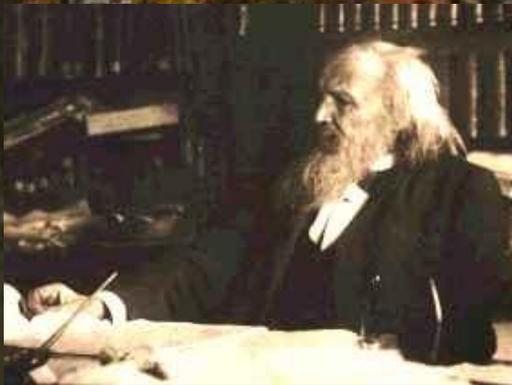
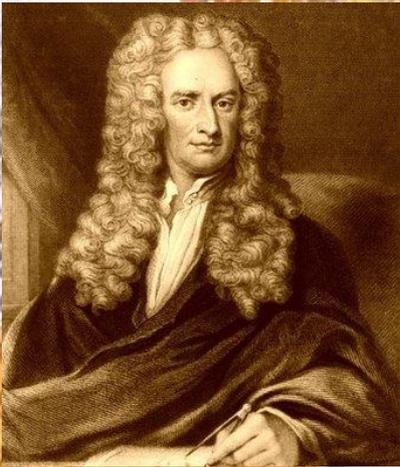


This is about
where the
double beheading
comes in...



Catalysts Number One and Two

THE
DESCENT OF MAN,
AND
SELECTION IN RELATION TO SEX.
By CHARLES DARWIN, M.A., F.R.S., &c.
IN TWO VOLUMES.—Vol. I.
WITH ILLUSTRATIONS.
LONDON:
JOHN MURRAY, ALBEMARLE STREET.
1871.
[The right of Translation is reserved.]



DIALOGO
DI
GALILEO GALILEI LINGEO
MATEMATICO SOPRAORDINARIO
DELLO STUDIO DI PISA.
E Filosofo, e Matematico primario del
SERENISSIMO
GR.DVCA DI TOSCANA.
Donde ne i congressi di quattro giornate si discorre
sopra i due
MASSIMI SISTEMI DEL MONDO
TOLEMAICO, & COPERNICANO,
Proposizioni indubitabilmente verissime Filosofiche, e Naturali
tratte per l'uno, & quasi per l'altro parte.
CON FRI  VIREGLI
IN FIRENZA, Per Gio: Batista Landini MDCCXXII.
CON LICENZA DE' SUPERIORI.

...the mean variety of...

...researchers began to notice that in... GP

...increasing their mean and best fitness, GP

...showed certain other dynamics. In particular, it

...very often, while for a certain number of genera-

...size (number of nodes) of the network start growing at

...static, at some point... size was not ac-

Typically, the increase in... fitness. The origin of

any corresponding increase... has effectively been

...is known... significant

...effects, (large

...ation an

Catalyst Number Three...

...saying more and more about less and less for fewer and fewer...



Master teacher Holly Stocking shows how a love of science and a love of words can become the basis for a rewarding profession.



Catalyst Number Four



Special: New Learning Series on Genetics, page 70

Complexity—the Science of Surprise | Your Inner Swam

Discover

JANUARY 2006

The
11
Greatest
Unanswered
Questions
of
Physics



MIT'S MAGAZINE OF INNOVATION

TECHNOLOGY

REVIEW

The \$64 Billion Switch

Lucent, Nortel and Agilent are racing to find the way to a superfast, all-optical Internet

University Research Scorecard
50 Universities Rated

Lying With Pixels
The Real E-books

Genomics' First Billionaire?

What's Cool in Tech Now • Fixing Air Travel

FORTUNE

INSIDER

Apple's Steve Jobs: His \$672,000,000 options grant is the largest ever—so far.

www.fortune.com and Keyword: Fortune

JULY 21, 2006 \$3.50

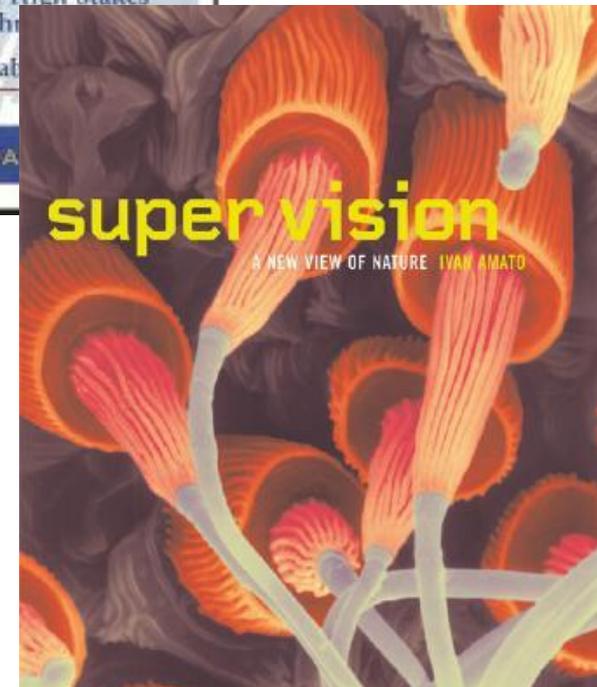
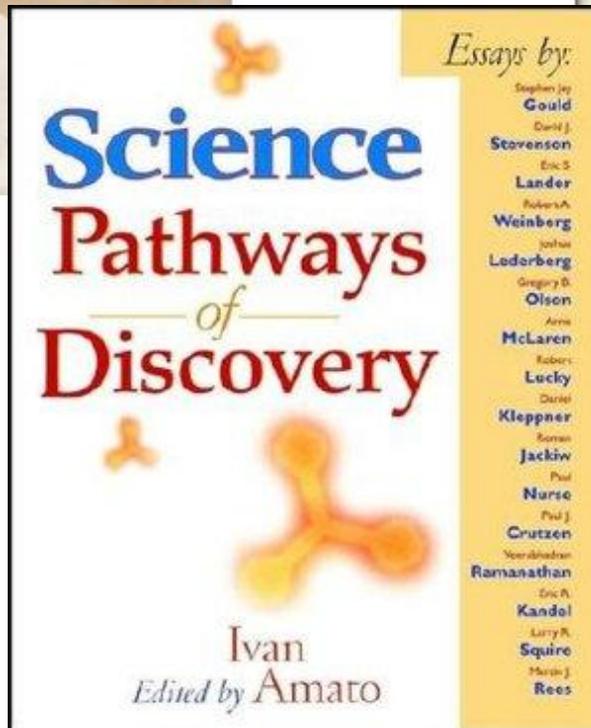
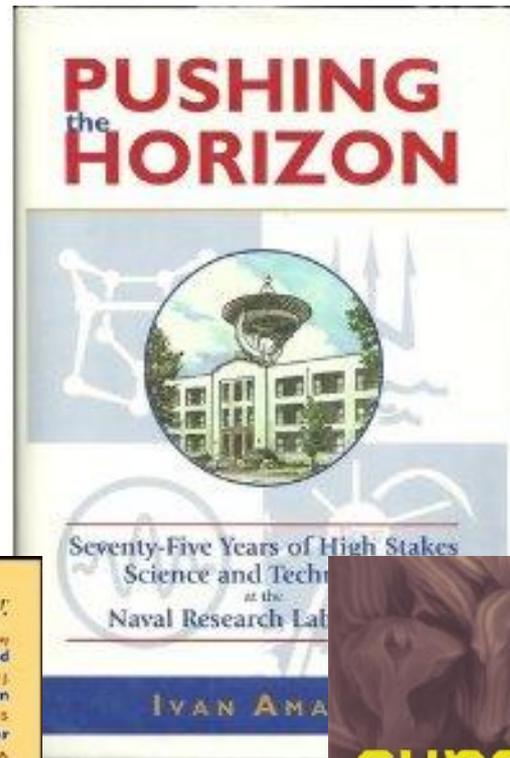
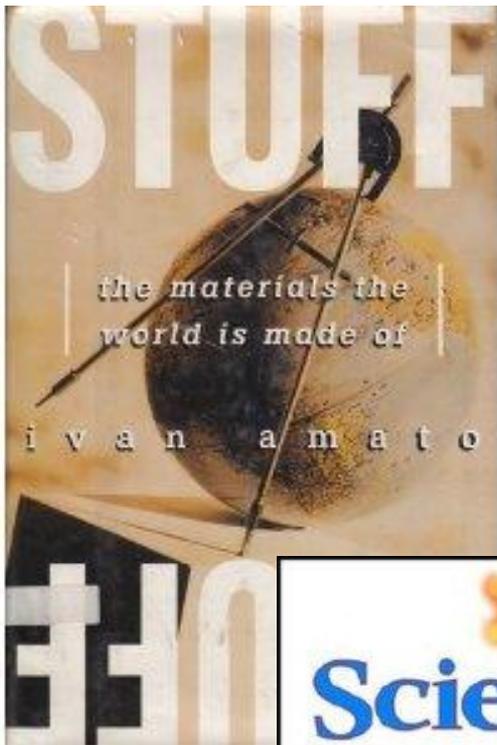
www.time.com AOL Keyword: TIME

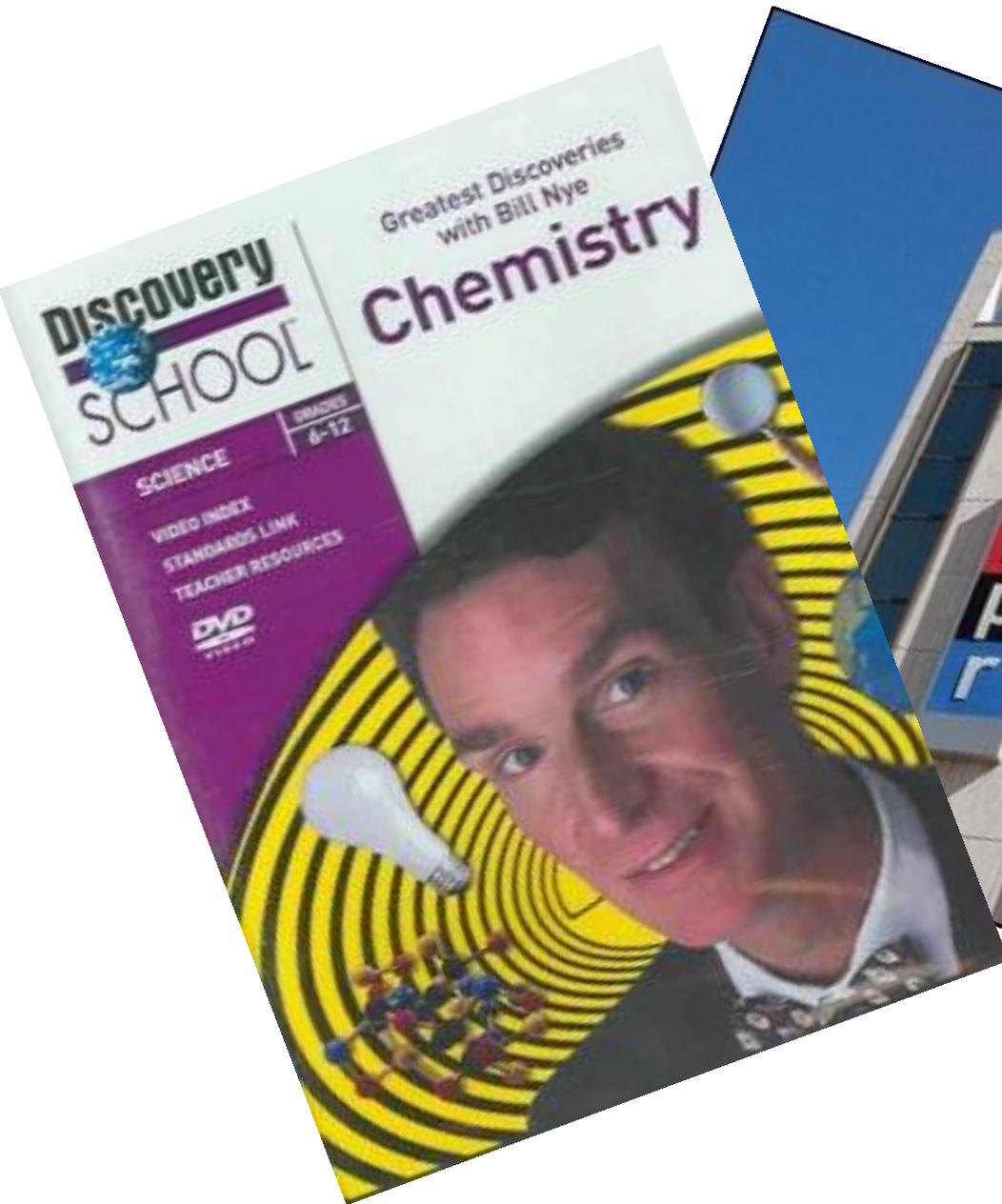
TIME

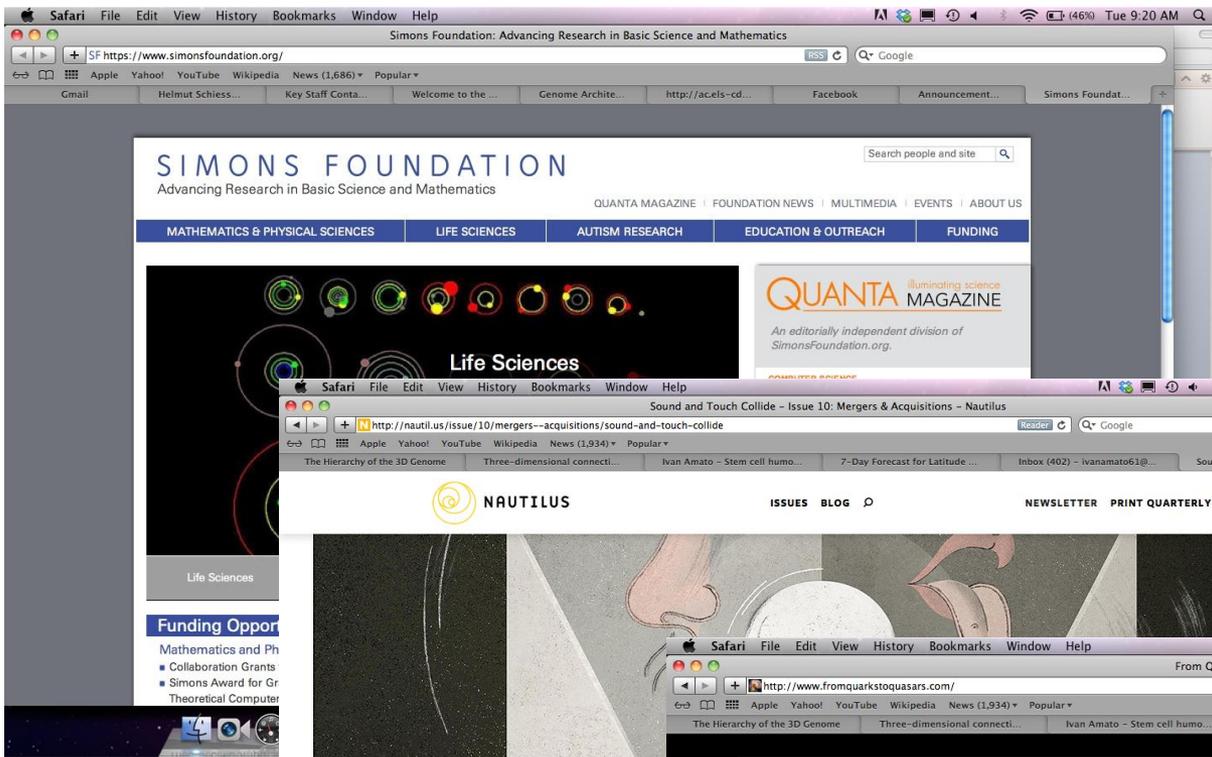
THIS RICE COULD SAVE A MILLION KIDS A YEAR

...but protesters believe such genetically modified foods are bad for us and our planet. Here's why.

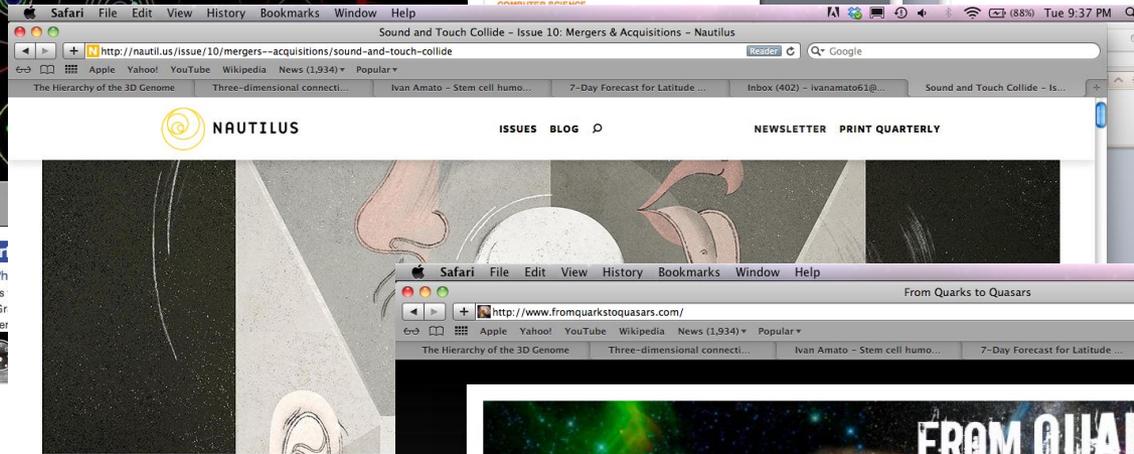
Swiss Professor Ingo Potrykus with his beta-carotene-enriched rice



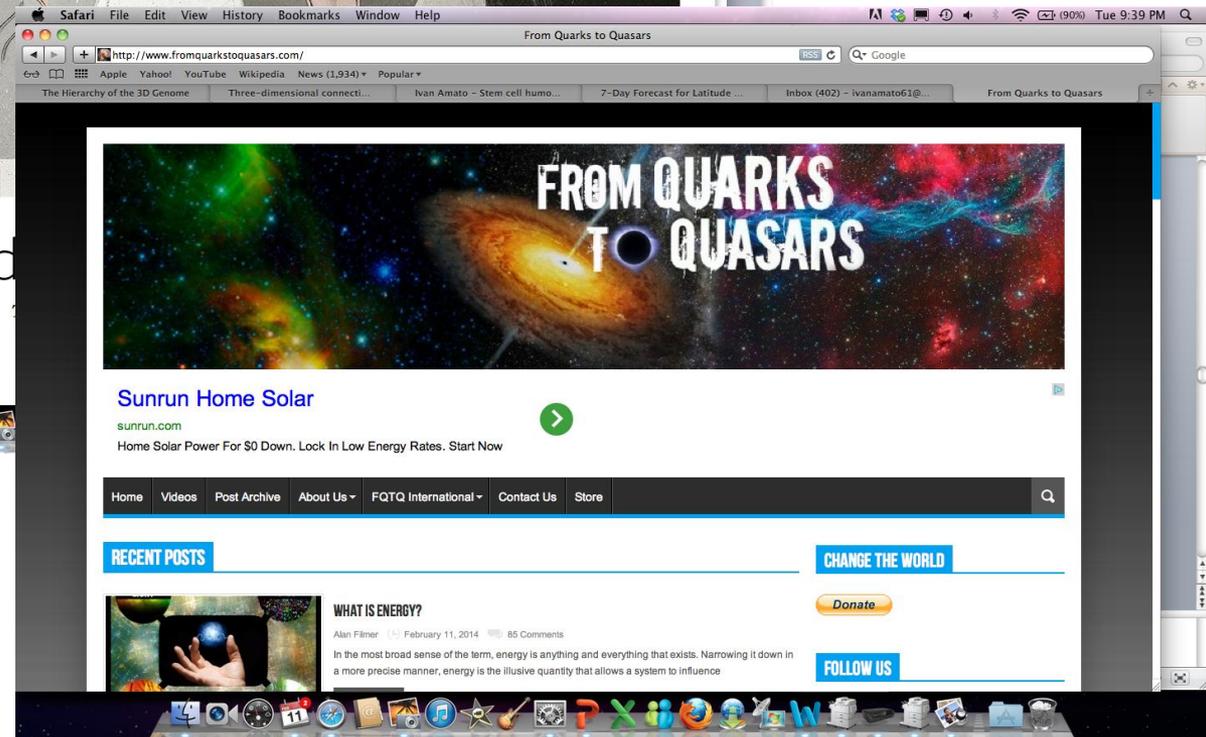


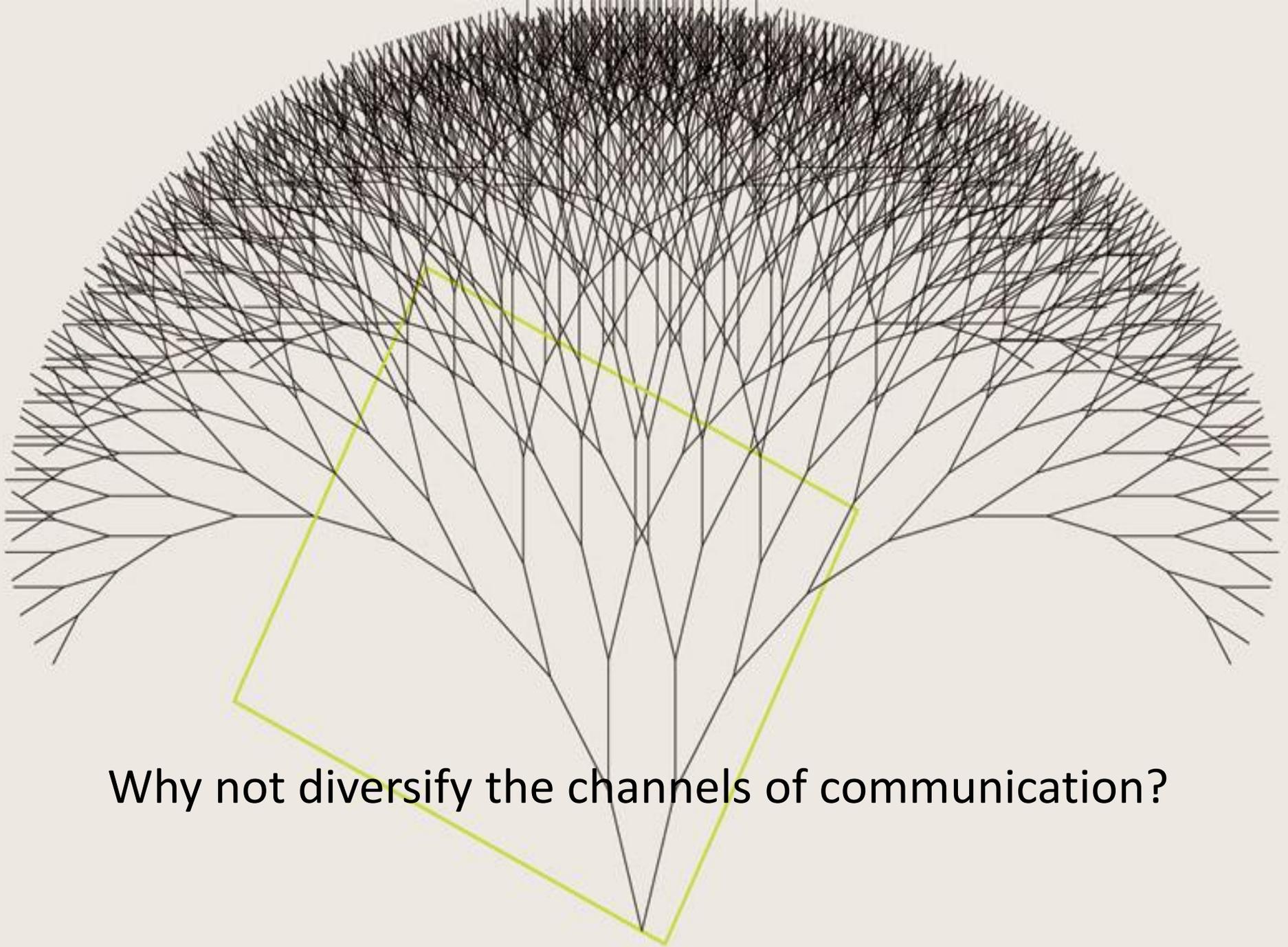


The Internet foists historic change into the world of journalism...



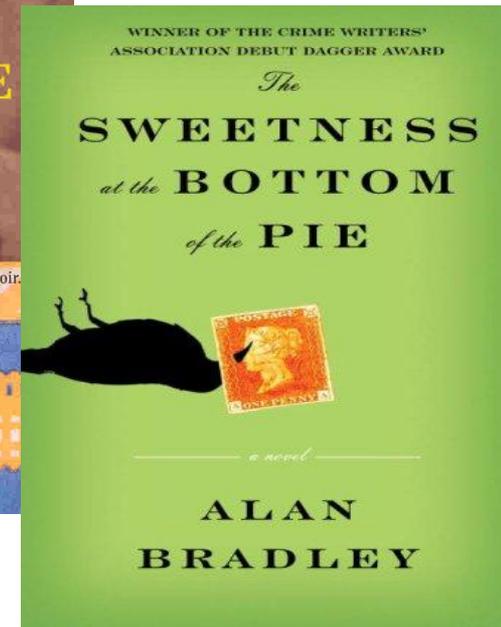
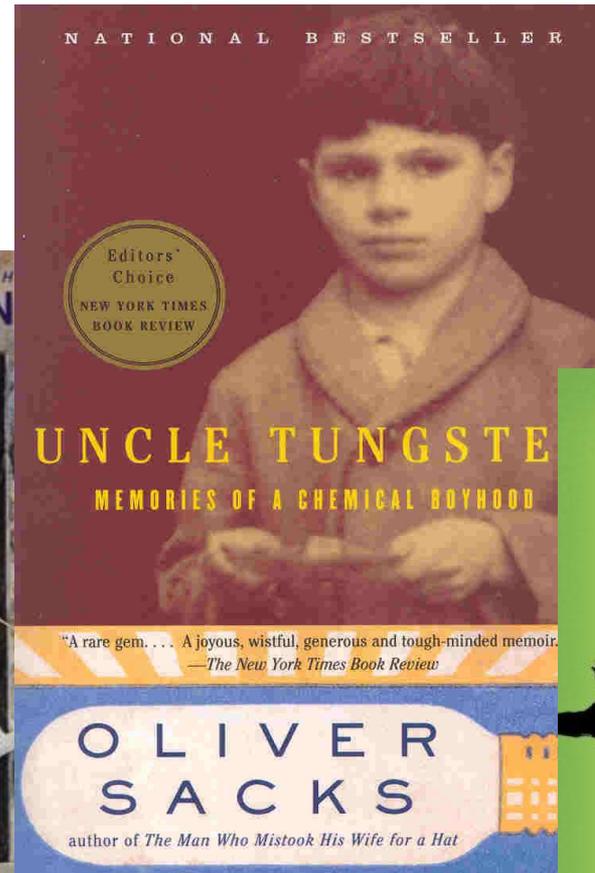
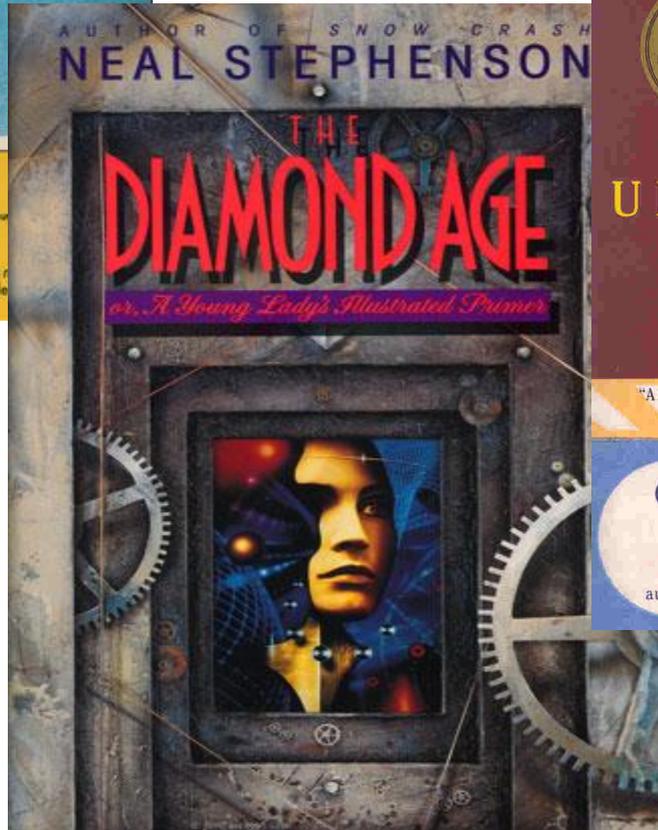
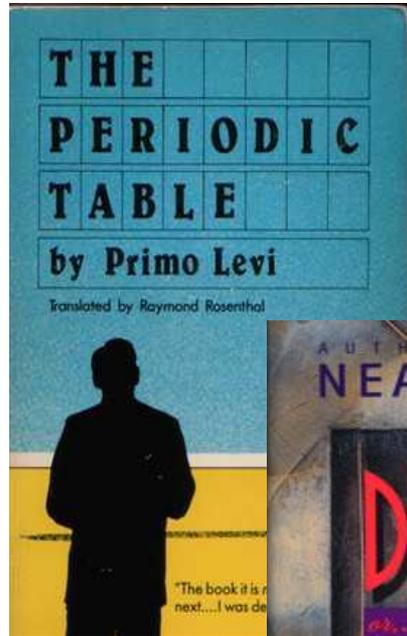
Sound





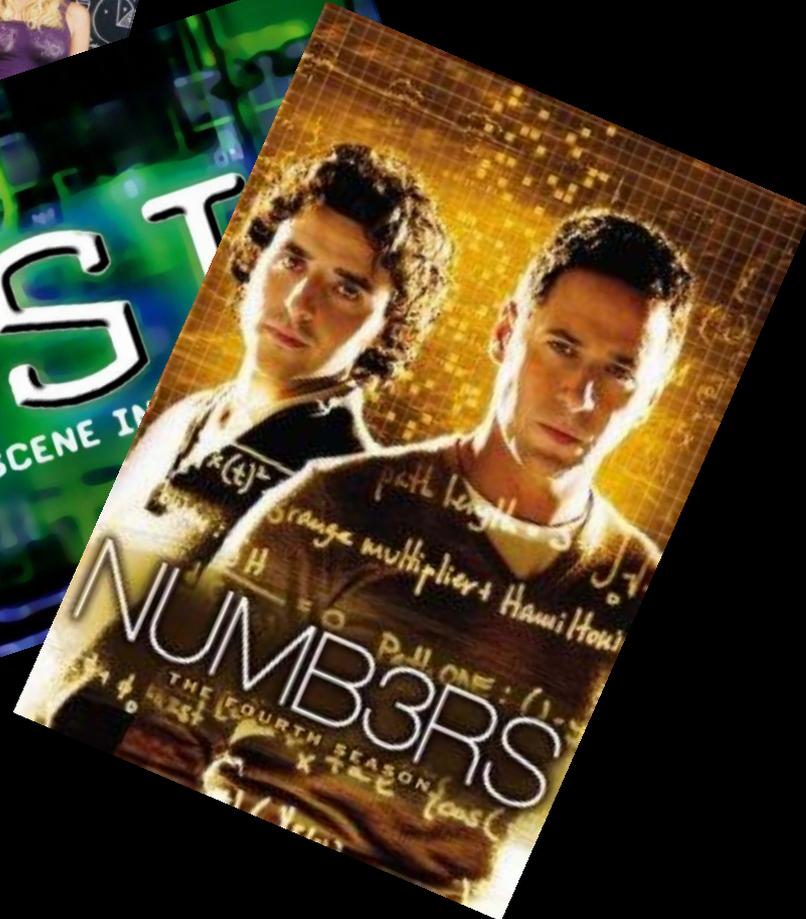
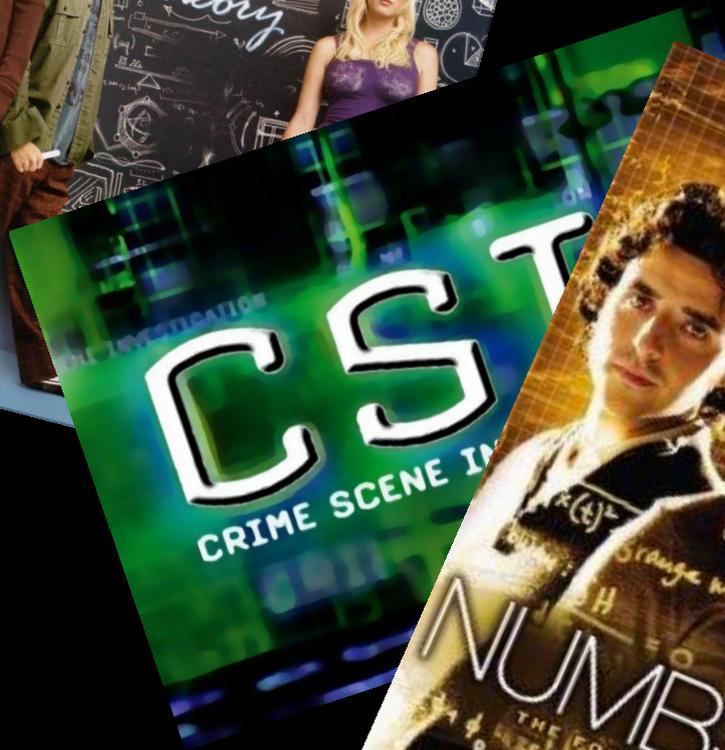
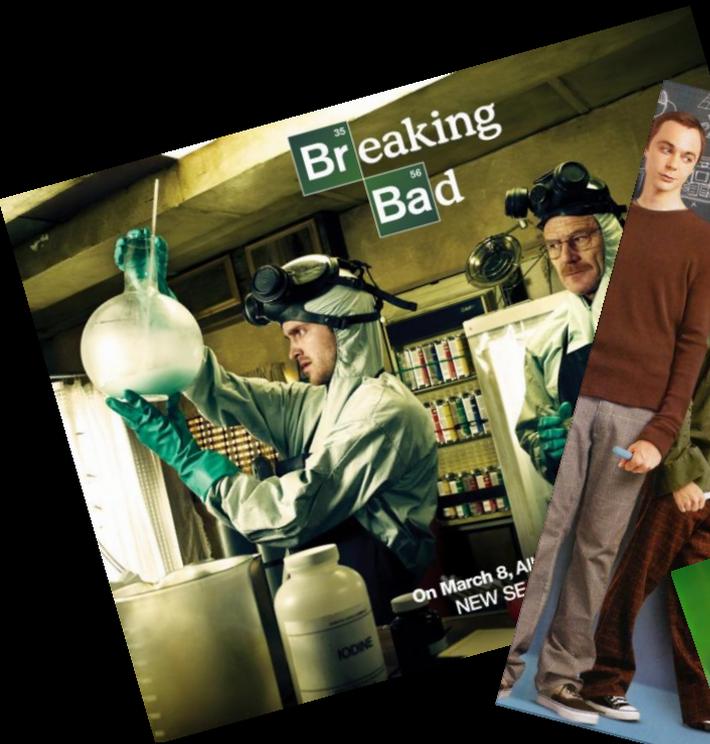
Why not diversify the channels of communication?

Science in literature...fiction and nonfiction



Science and technology in the movies....





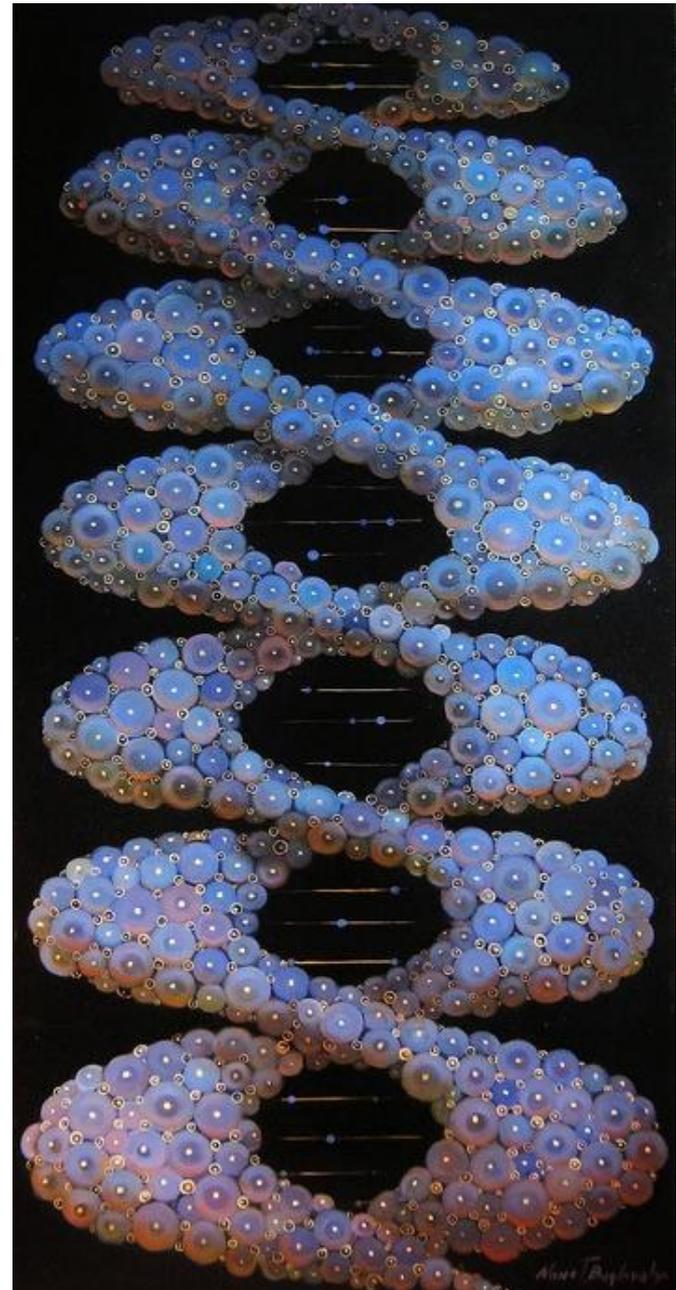
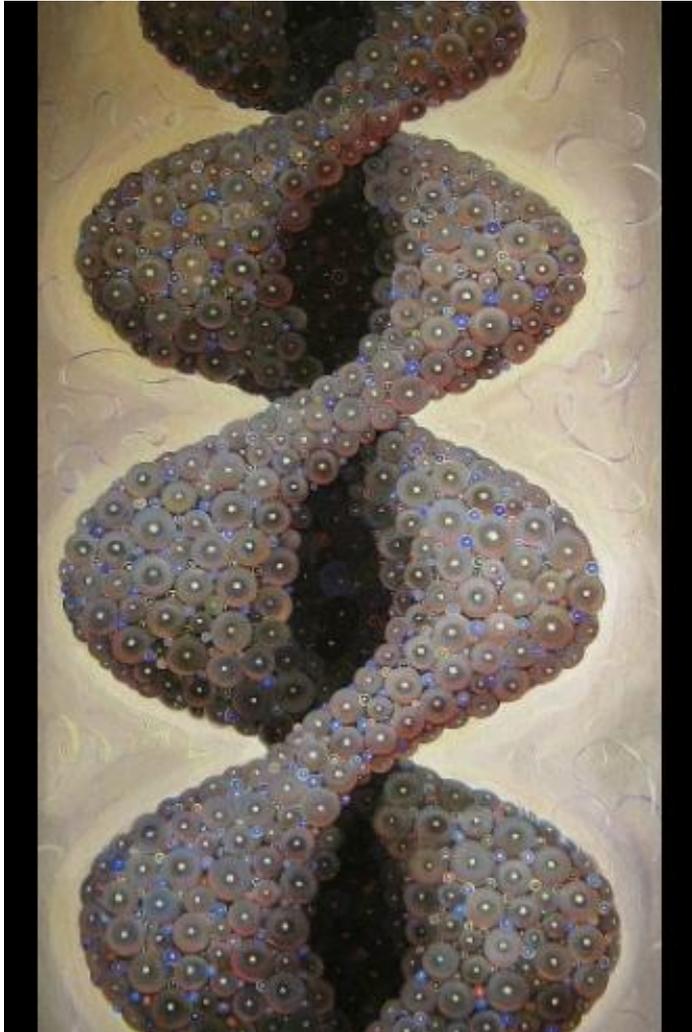
Science on TV

Science meet the fine arts...



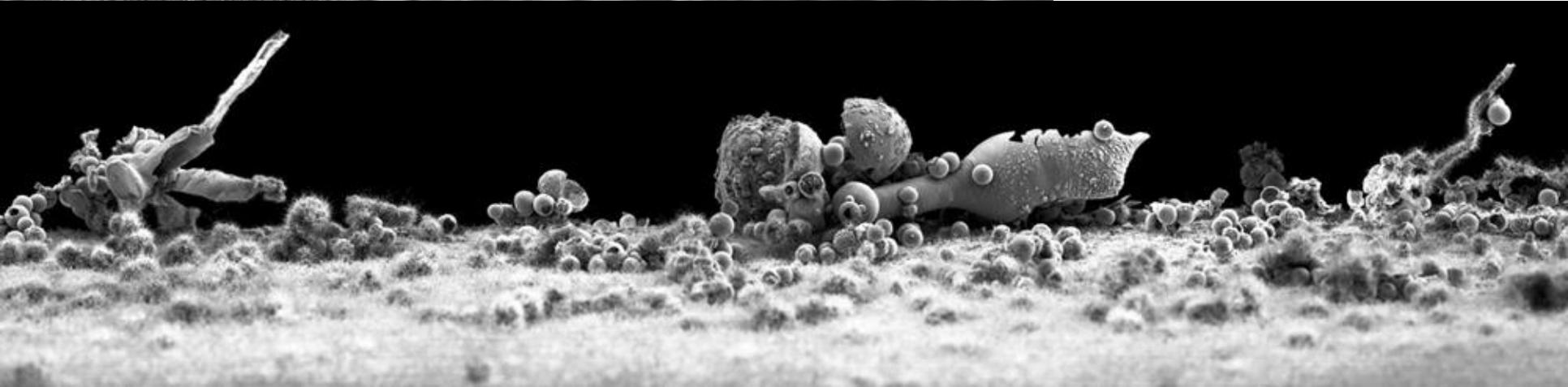
Elemental Garden, a sculptural interpretation of the Periodic Table by artist Rebecca Kamen

Nana Bagdavadze





Teach an artist—in this case Michael Oliveri—how to use a scanning electron microscope and this might happen.

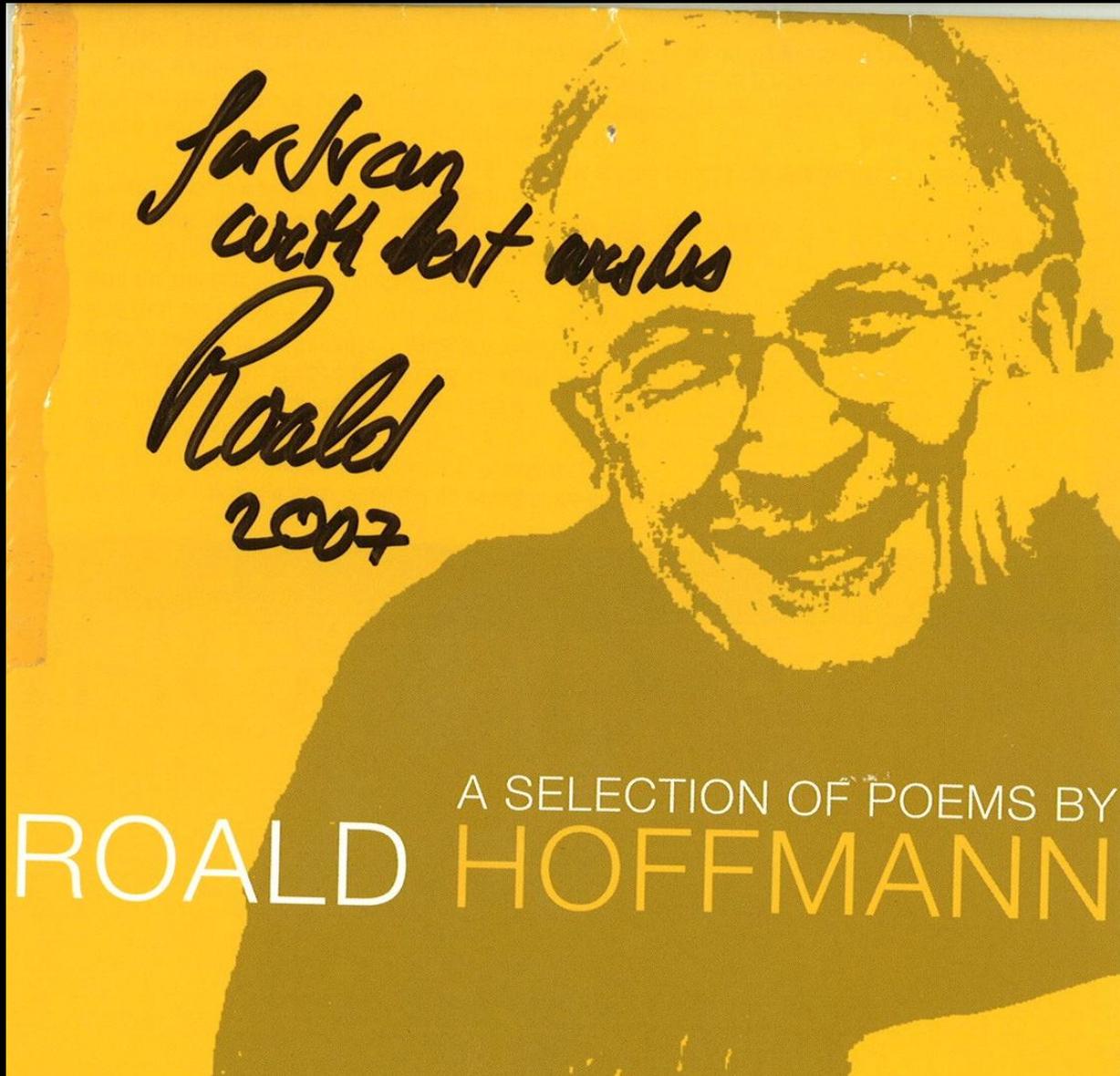




A Matter of Origins: Liz Lerman tells science and technology stories through dance



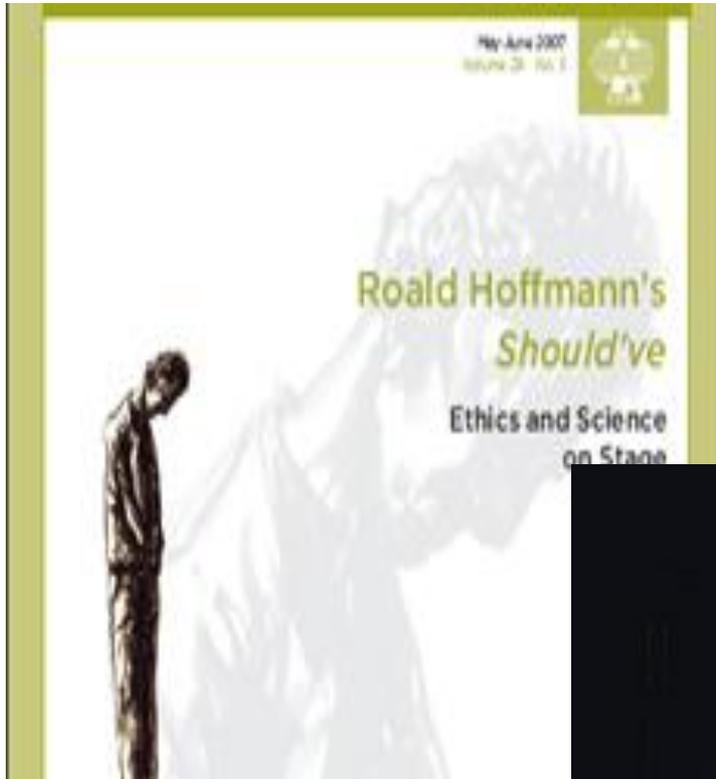
Roald Hoffman tells science stories by way of poetry...



for Ivan
with best wishes

Roald
2007

A SELECTION OF POEMS BY
ROALD HOFFMANN



...and theater



Michael Frayn's Copenhagen

DC Science Café Busboys & Poets



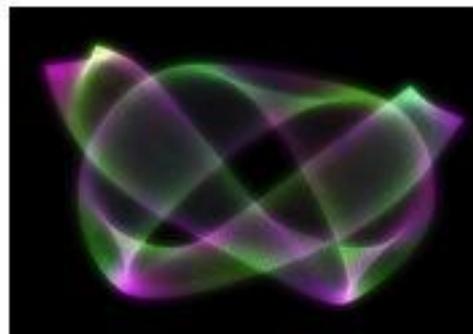
A DC Science Café Event

Quantum Mechanics: Embrace the Weirdness



Many scientists rate quantum mechanics as the most successful description of the physical world ever. It accounts for the antics of atoms, electrons, photons and other minutiae with stunning precision, even as it provides the physical foundation for the world-changing technologies underlying the information revolution. There's more to it than that. This same theory of theories also reveals that our reality is weirder than all get out. Particles can be in two places at the same time...or they can exist (sort of) without actually being here at all. If you measure the trait of one particle in one location, you just might end up locking in properties of another distant particle instantaneously. Our notions of cause-and-effect and of objective reality in our daily lives do not apply so well in quantum mechanical realms. Join discussion leader Steve Rolston, physicist at the University of Maryland and co-director of the Joint Quantum Institute (a research partnership between UMD and the National Institutes of Standards and Technology), for an evening of eating, drinking and thinking that will leave you wide-eyed and neither here nor there and thereby most attuned to your own quantum mechanical foundations.

American Sign Language (ASL) interpreters will be on hand!



Tuesday, February 21, 2012

6:30 - 8:30 pm (program starts at 7:00 pm)

Busboys and Poets, 5th and K St., NW, Washington, DC

www.busboysandpoets.com/about_5th.php

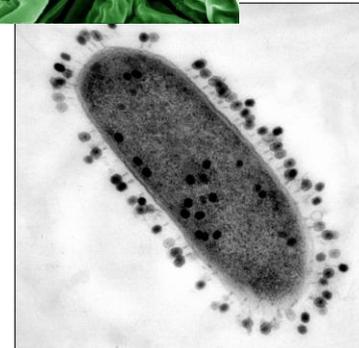
For info, contact Ivan Amato: DCScienceCafe@dcswa.org

This, the seventh of an ongoing series of DC Science Café events, is brought to you with support from DC Science Writers Association, the USA Science and Engineering Festival, and encouragement from Busboys and Poets.

A DC Science Café Event

You and Your Ten Thousand Trillion Microbes

For every human cell in your body, there are hundreds or thousands of bacterial cells. So who is hosting whom? Even though our on-board microbial hordes—known also as our microbiome—sometimes threaten and deprive us of our health and our lives, they are central to our survival and our daily well being. Join a discussion that might convince you to love your microbial partners in life, albeit with a healthy respect for the ways they can become dangerous. Leading the discussion will be microbiologist Liliana Losada of the J. Craig Venter Institute, an independent research laboratory in Rockville, MD, that has been greatly expanding our fundamental knowledge of the microbes in our world; and Alison O'Brien, former president of the American Society of Microbiology, professor of microbiology and immunology at the Uniformed Services University of the Health Sciences, and an expert in the gut bacterium known as *E. coli*, a major player in human health, basic science and biotechnology.



Tuesday, April 25, 2012

6:30 - 8:30 pm

Busboys and Poets, 5th and K St., NW, Washington, DC

www.busboysandpoets.com/about_5th.php

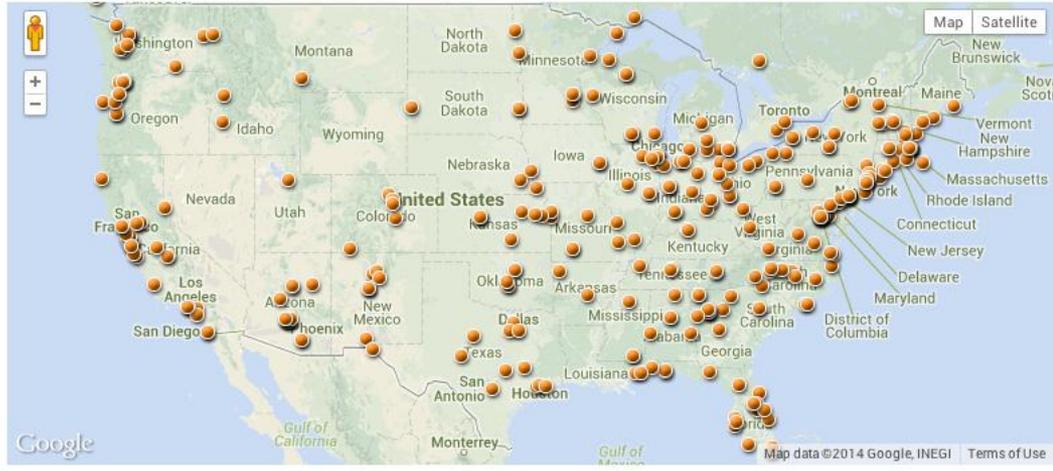
For info, contact Ivan Amato: DCScienceCafe@dcswa.org

This, the ninth of an ongoing series of DC Science Café events, is brought to you with support from DC Science Writers Association, the American Academy of Microbiology, the USA Science and Engineering Festival, and encouragement from Busboys and Poets.

Search the map or find a café by [Find Café](#)

Looking for a science café near you? Enter your zip code or click on the map.

No café near you? [Start one!](#) We're more than happy to help!



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Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.





Find Cafés

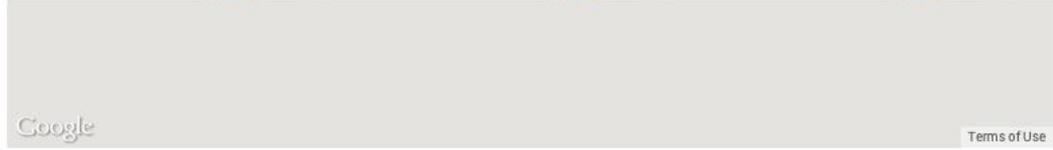
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Looking for a science café near you? Enter your zip code or click on the map.

No café near you? [Start one!](#) We're more than happy to help!





The Greatest Story Ever Told

Ivan Amato, Journalist in Residence
Kavli Institute for Theoretical Physics
February 19, 2014

Kohn Hall
Kavli Institute for Theoretical Physics

A collaboration of scientists and journalists