



MEETING(S) OF THE NOBEL PRIZE WINNERS



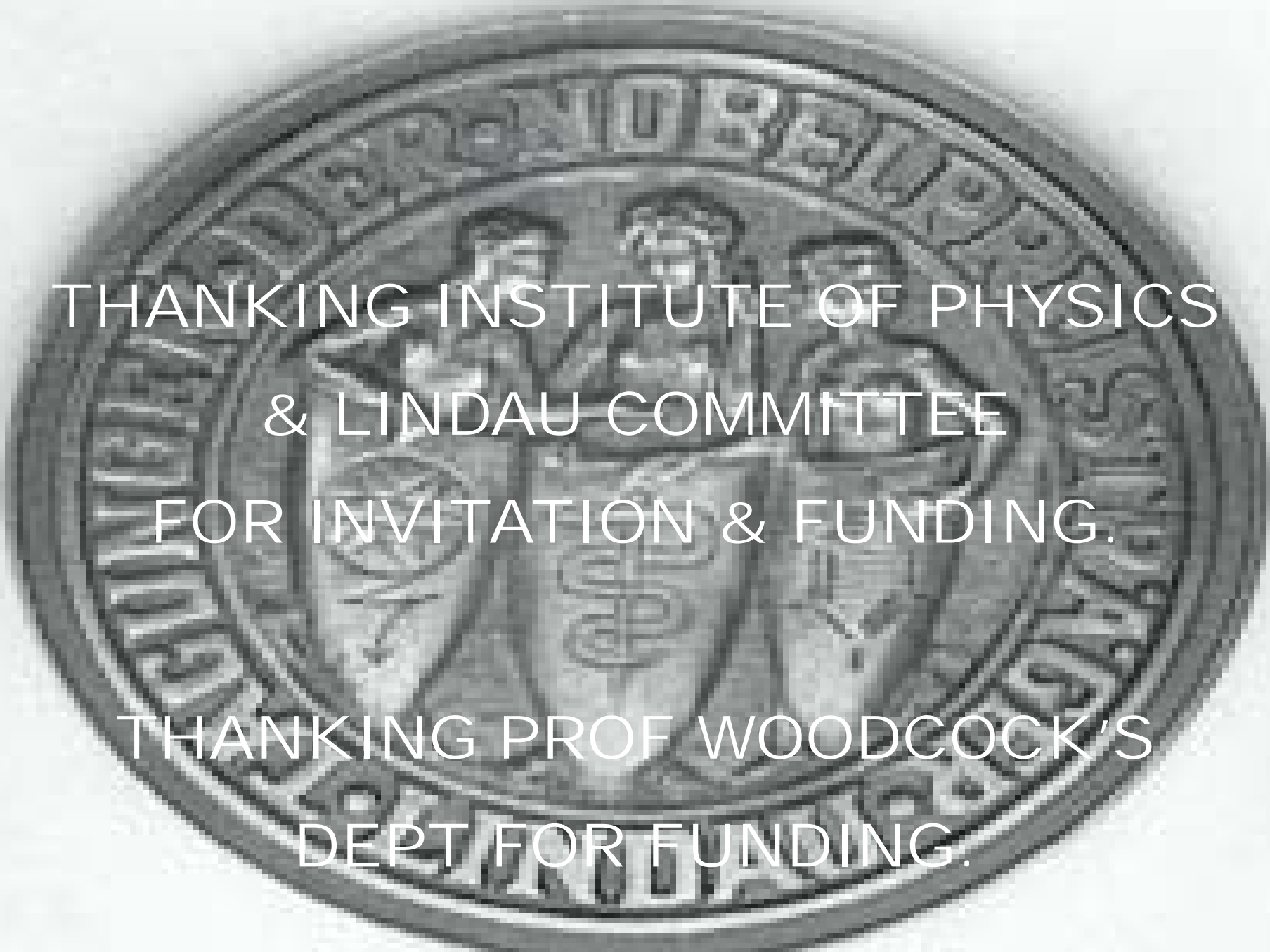
PHYSICS

PHYSIOLOGY / MEDICINE

CHEMISTRY

25 JUNE ~ 1 JULY 2005

MARY PW CHIN REPORTING BACK



THANKING INSTITUTE OF PHYSICS
& LINDAU COMMITTEE
FOR INVITATION & FUNDING.

THANKING PROF WOODCOCK'S
DEPT FOR FUNDING.

Aaron Ciechanover (Israelite)

Chemistry 2004

for the discovery of ubiquitin-mediated protein degradation

Whereas they are often studied as static, proteins are dynamic

Most funding spent on temperature control.
37 C: between catalyst & destruction



PROTEIN (word)
AMINO ACIDS (alphabets)
but proteins are longer than normal words

Intracellular / intercellular protein degradation

👉 **THERAPY**



Anders B r ny

Secretary, Nobel Committee

Deputy Director, Nobel Museum

In which order should I introduce the panel of 7 laureates?



Order them by year of birth? And here's the list ...

Order them alphabetically? And here are their names ...

Order them by year they received the Nobel prize? And here's the list ...

Order them by the age at which they received the Prize? And here's the list ...

Order them by ...



Anders B r ny

Secretary, Nobel Committee

Deputy Director, Nobel Museum



**BEST CHAIR I'VE
EVER SEEN.**

**At the end, everybody
got to know all he/she
wanted to know about
each Laureate.**

**ALL-ROUNDED
KNOWLEDGE ... maybe
better than individual
laureate!**

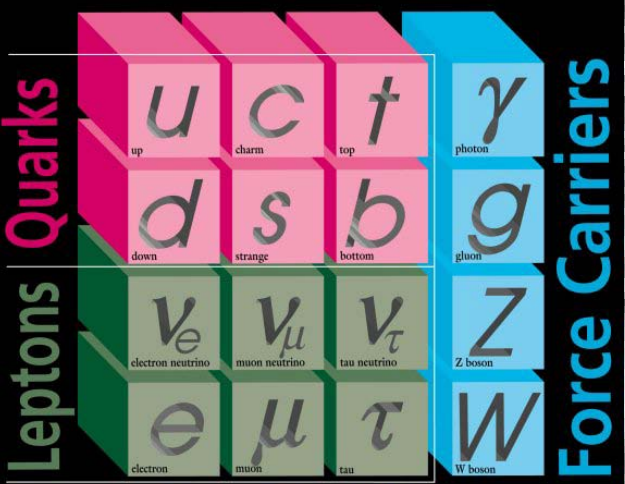
**Helped Laureate who
couldn't answer question.**

Masatoshi Koshihba (Japanese)

Physics 2002

for the detection of cosmic neutrinos

ELEMENTARY PARTICLES



I II III
Three Generations of Matter



IF YOU WANT TO GET RICH, DON'T STUDY NEUTRINOS.



Martinus Veltman (Dutch)

Physics 1999

for elucidating the quantum structure of electroweak interactions

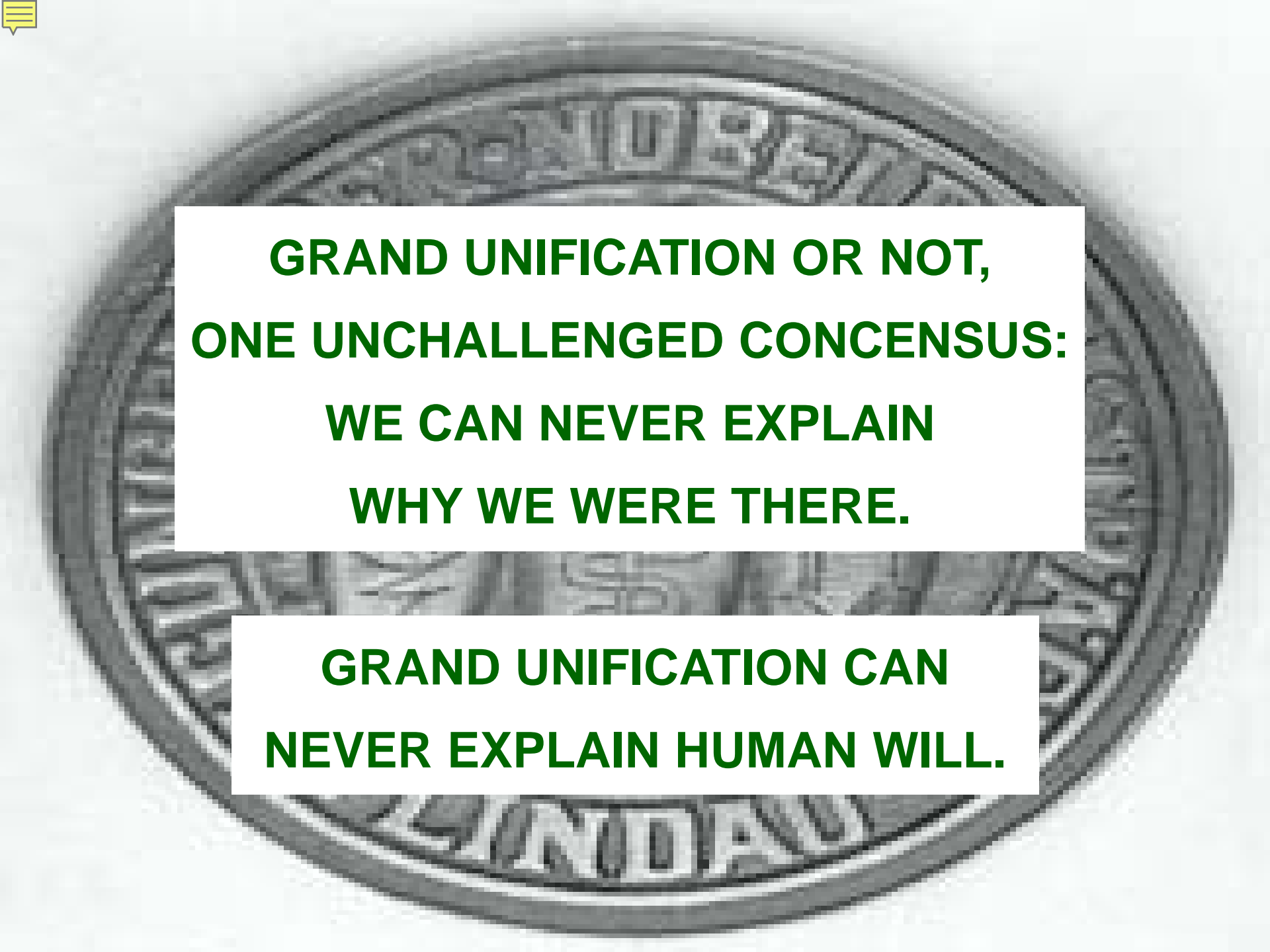
THE HIGGS BOSON GUY



MAYBE THERE'S
NO SUCH THING
AS
THE GRAND
UNIFICATION.

Fundamental Forces

<i>Strong</i>	<p>Force which holds nucleus together</p>	Strength 1	Range (m) 10^{-15} (diameter of a medium sized nucleus)	Particle gluons, π (nucleons)
<i>Electro-magnetic</i>		Strength $\frac{1}{137}$	Range (m) Infinite	Particle photon mass = 0 spin = 1
<i>Weak</i>	<p>neutrino interaction induces beta decay</p>	Strength 10^{-6}	Range (m) 10^{-18} (0.1% of the diameter of a proton)	Particle Intermediate vector bosons W^+ , W^- , Z_0 , mass > 80 GeV spin = 1
<i>Gravity</i>		Strength 6×10^{-39}	Range (m) Infinite	Particle graviton ? mass = 0 spin = 2



**GRAND UNIFICATION OR NOT,
ONE UNCHALLENGED CONSENSUS:
WE CAN NEVER EXPLAIN
WHY WE WERE THERE.**

**GRAND UNIFICATION CAN
NEVER EXPLAIN HUMAN WILL.**

Kurt Wüthrich (Swiss)

Chemistry 2002

for development of NMR spectroscopy for determining the 3D structure of biological macromolecules

GENOME \equiv BELT
SIMILAR LENGTH
HEAD & TAIL



MUST UNFOLD
POLYPEPTIDE
CHAIN. HOW?

STRUCTURAL BIO:
CAN'T DECODE
WITHOUT 3D

FOLD OR
NO FOLD:
DIFFERENT
NMR!

David Gross (American)

Physics 2004

for the discovery of asymptotic freedom in
the theory of the strong interaction

List of questions
unanswered:

...

- Can String Theory tell origin of universe?
- What's Dark Matter & what's Dark Energy?
- When does Quantum Mechanics fail?



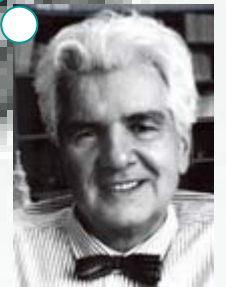
- Is there a Theory of Biology?
- Is there a Theory of Math?

Exam question in 25 years' time:
Given genome,
draw organism's shape!

MY FAVOURITE Q&A

WHEN CAN
BIOLOGY
GO BEYOND
STORY-
TELLING?

WHO SAYS
PHYSICS
GO BEYOND
STORY-TELLING
ANYWAY?



Günter Blobel (German)
Physiology / Medicine 1999

THE FUTURE OF MEDICINE

**SINGLE GENE SPECIFICITY:
ZINC FINGER THERAPY**

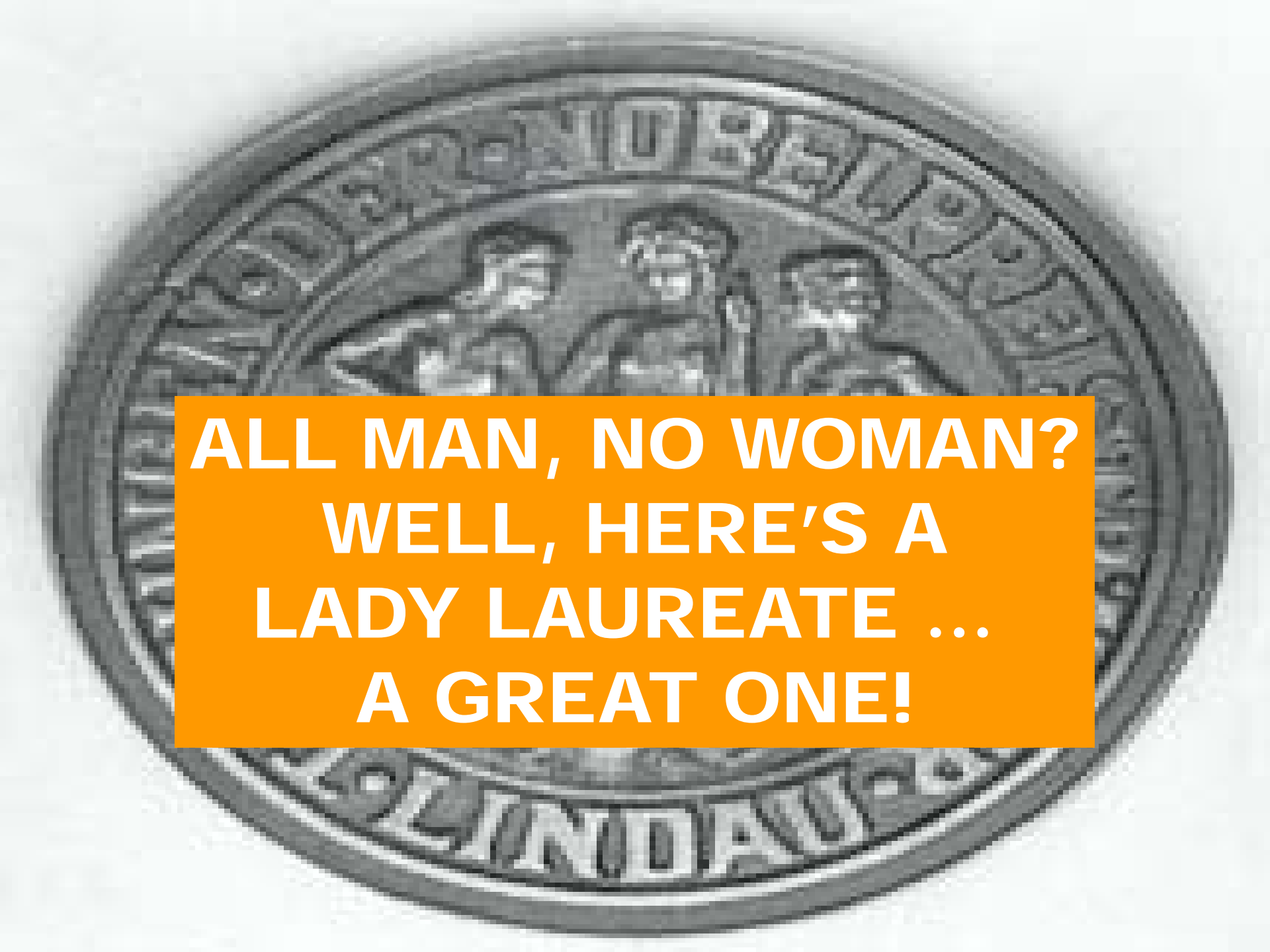
versus

CHEMOTHERAPY

**DETAILED KNOWLEDGE-BASED
INTERVENTION @
PROTEIN / GENOME LEVEL**

versus

EMPIRICAL INTERVENTION

The background of the image is the seal of the University of Cambridge. It is a circular emblem with a dark, textured appearance. The outer ring contains the Latin motto 'HIVMILITIBVS' at the top and 'ANNO DNI MCCLXXXIII' at the bottom. The inner circle features a central figure, likely a saint or scholar, surrounded by other figures and architectural elements.

ALL MAN, NO WOMAN?
WELL, HERE'S A
LADY LAUREATE ...
A GREAT ONE!

Christiane Nüsslein-Volhard (German)

Medicine 1995

for genetic control of early embryonic development

I FIND HER A SHINING
MODEL. CRYSTAL-
CLEAR INSIGHTS.
DOWN-TO-EARTH,
GIMMICK-FREE. FIRM,
PENETRATING.



GENE
EXPERIMENT
S

Funny: can't do in
Germany ...
cross over to
the UK, can!
In US itself,
cannot? Cross
over to the next
state, can!

CLONING?

Nobody is going to know how.
Nobody is going to want to.

Riccardo Giacconi (Italian)

Physics 2002

for pioneering contributions to astrophysics,
which have led to the discovery of cosmic X-ray sources



**FUNDING COUNCIL
DECISIONS:
RANDOM SELECTION
MAY BE MORE
EFFECTIVE THAN
PEER-REVIEW!**

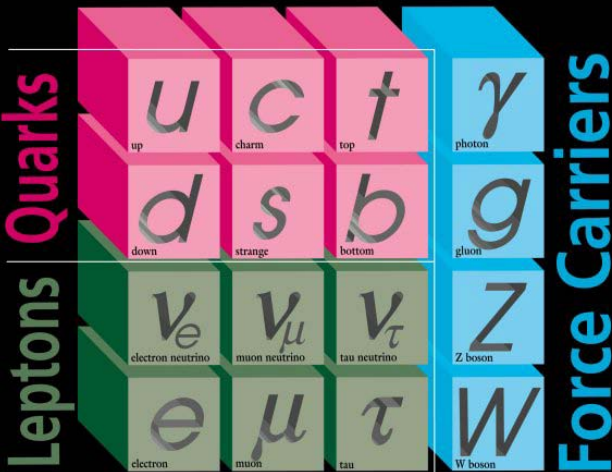
Frank Wilczek (American)

Physics 2004

for the discovery of asymptotic freedom in the theory of the strong interaction



ELEMENTARY PARTICLES



I II III
Three Generations of Matter

**WHO SAYS YOU
CAN'T SEE QUARKS
& GLUONS?
COLLIDE POSITRONS
WITH ELECTRONS AND
YOU'LL SEE THEM.**

ENERGY SHORTFALL: ROUND-TABLE DISCUSSION

2 AMERICAN LAUREATES NOT PROUD OF NON-PARTICIPATION IN KYOTO AGREEMENT

BUSH'S JUSTIFICATION:

1. No convincing evidence that CO₂ is caused by humans
2. Too costly
3. Developing countries not subjected to limits

Before changing his mind ...

Bush's early speech acknowledged CO₂ cause

... BUT NEVER REPORTED

US is in denial

Shell & British Gas are doing something, Exxon not.

Germans doing away with nuclear power: non-scientific

Peter Agre

Chemistry 2003

for the discovery of water channels in cell membranes



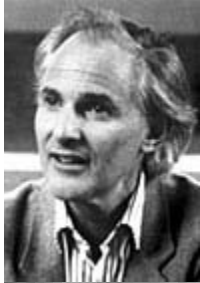
**FRIENDS RANG UP, "HEY PETER
CONGRATULATIONS
YOU'VE WON THE NOBEL PRIZE...
IT'S UNBELIEVABLE!!!
OH NO NO NO NO, IT IS BELIEVABLE!"**

Sir Harold Kroto (British)

Chemistry 1996

for discovery of fullerenes

**FLASHY
PRESENTATION ON
NANO MATERIALS.
THE MOST
POPULAR
SPEAKER.**



in sharp contrast to ...



CAMPAIGNS



Sir Harry Kroto
Chemistry 1996



Richard Roberts
Medicine 1993

The screenshot shows a web browser window with the URL <http://www.vega.org.uk/>. The browser's address bar and toolbar are visible. The website content includes a navigation menu with links: Home, News, Programmes, Schools, Order Video, Search, Information, Help, and About Us. The Vega logo is in the top left corner. The main heading is "The Vega Science Trust". On the left, there is a sidebar with links: Science Programmes, Educational Resources, News and Events, Resources on the Web, Vega Science Awards, and Science Media Portal. The main content area features a photograph of children looking at a glowing model of a molecule. Below the photo, the text reads: "Educational Resources Online Children's Workshops, and downloadable schools science packs. Projects, Science Movies, Homework Help, Things to Make and Do." To the right of the photo, there is a paragraph: "Vega is a not for profit organisation which broadcasts science programmes for free over the internet. Our programmes feature experts in science and engineering and many are or have in the past been broadcast on mainstream television (more)." Below this paragraph, there is a section titled "Useful Links:" with three sub-sections: "Tell a friend about this page", "Join our newsletter keep up to date and help Vega", and "Donate to Vega via cheque or credit card".

if journal not

OPEN ACCESS

- Don't submit
- Don't referee

CRITICAL NOTES

WRONG EMPHASIS!

Idol-worship.

People asked for tips on how to win a Nobel prize.

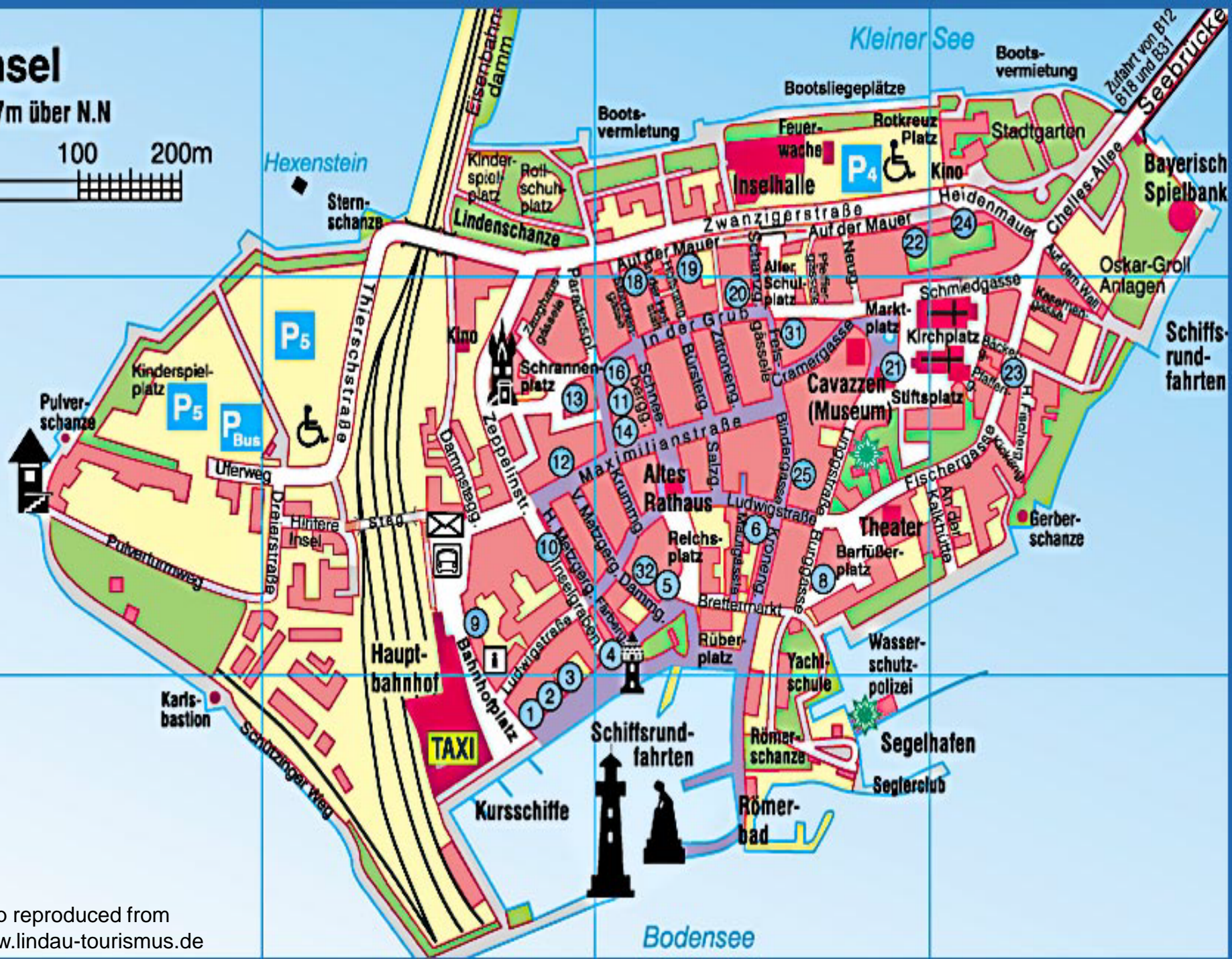
People more interested in taking photos and autographs than in learning.

People standing up to take photos at the start of lectures.

People snoring away in the middle of lectures.

Insel

397m über N.N



HISTORY (since 1951)

2 physicians in Lindau wanted to encourage international exchanges with Laureates. With enthusiastic support of Count Lennart Bernadotte from Insel Mainau, it became a yearly event. The Count was the great-grandson of Swedish King Oscar II, who presented the very first Nobel prizes.



Herzlich
am Bodensee

Haflinger + Pinzgauer

Arbon am Bodensee

Stefan.Lampin@bluewin.ch