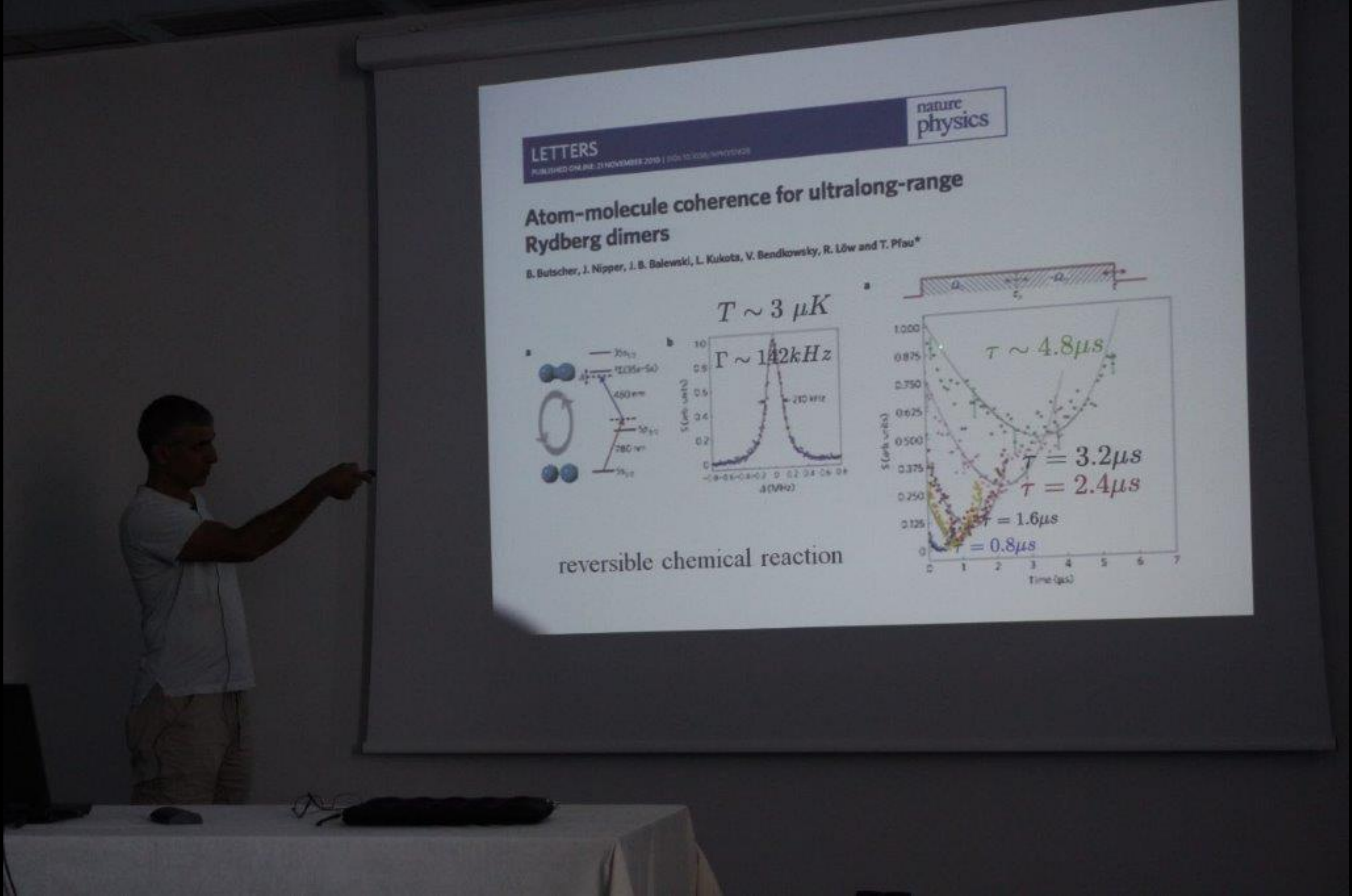


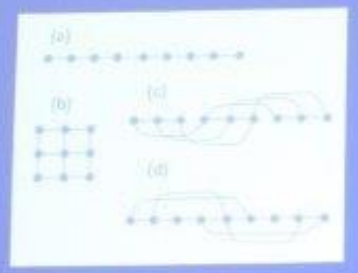
nature physics
LETTERS
Atom–molecule coherence for ultralong-range Rydberg dimers
B. Butscher, J. Nipper, J. B. Balewski, L. Kukota, V. Bendkowsky, R. Löw and T. Pfau*
T ~ 3 μK
Γ ~ 142kHz
τ ~ 4.8μs
τ = 3.2μs
τ = 2.4μs
τ = 1.6μs
τ = 0.8μs
reversible chemical reaction
Time (μs)


Optical frequency comb: Ideal source
for ultrasensitive absorption spectroscopy
T. Ban[1] , A. Foltynowicz[2] , P. Maslowski[3] , F. Adler[4] and J. Ye[5]
JILA
NIST CU
Eilat conference, August 2012.

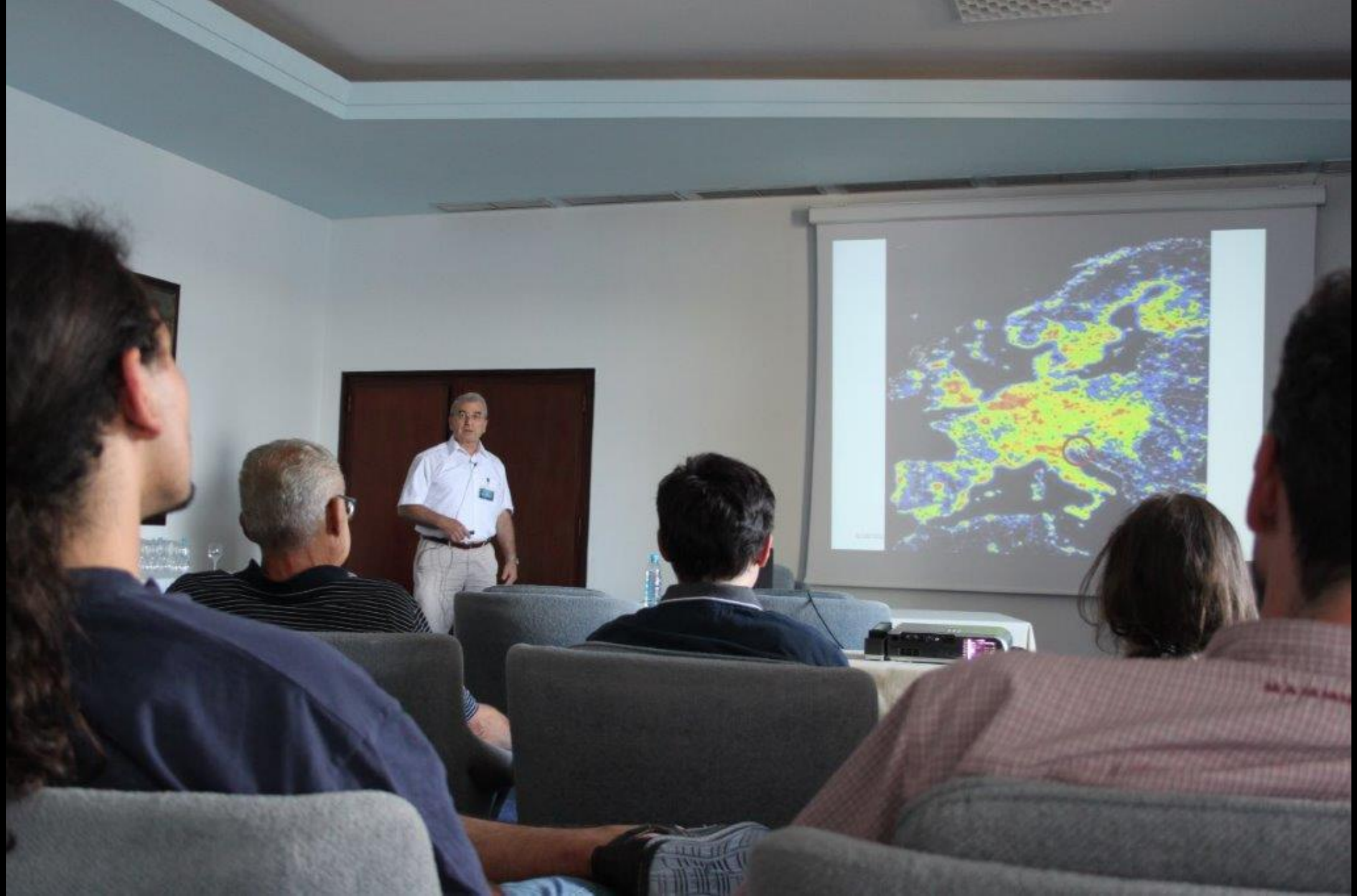

Wharf Bar


Schooner Wharf Bar
Key West

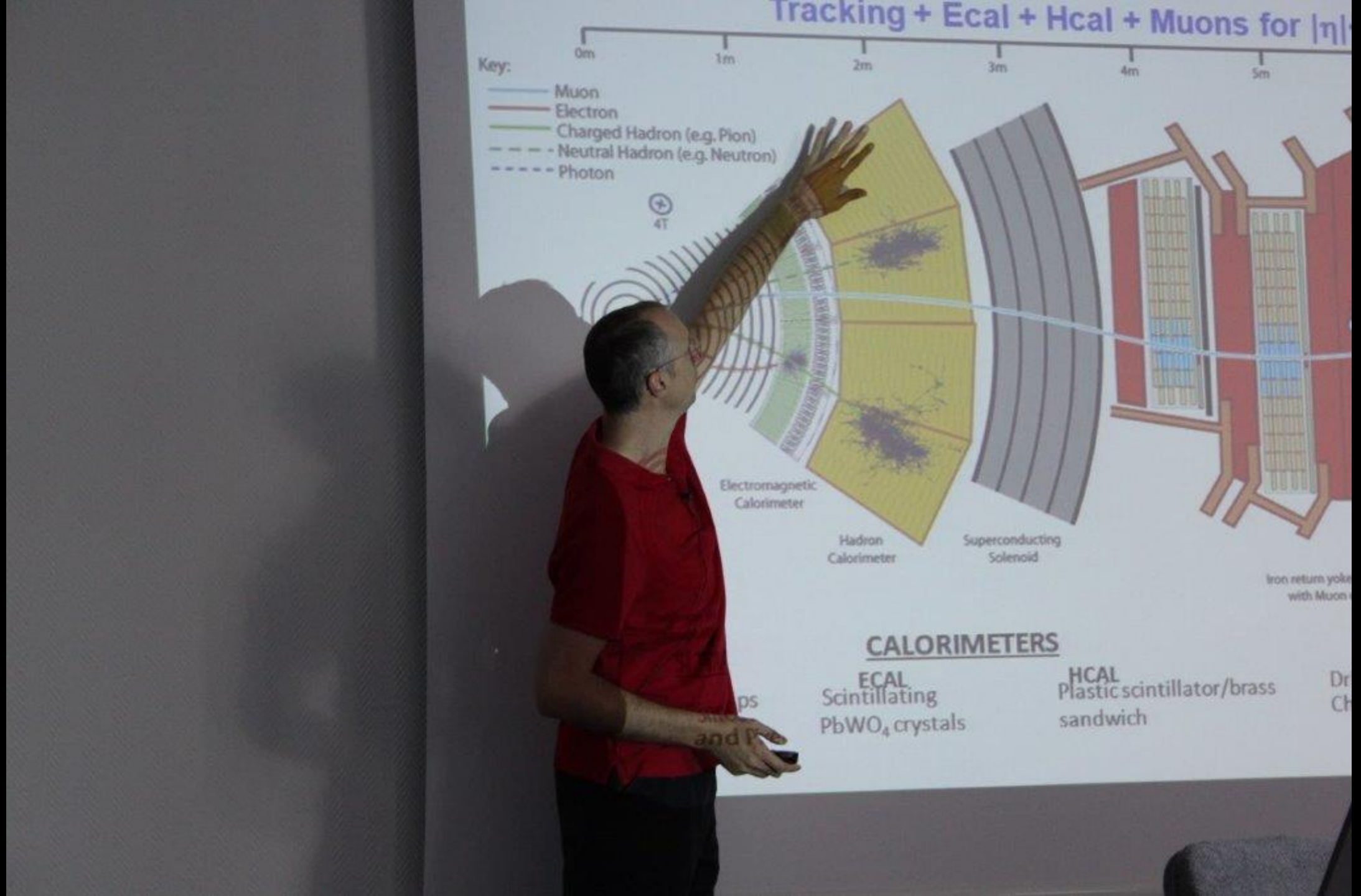
Four-dimensional photonic lattices and discrete tesseract solitons



Hrvoje Buljan
Department of Physics, University of Zagreb
hbuljan@phy.hr

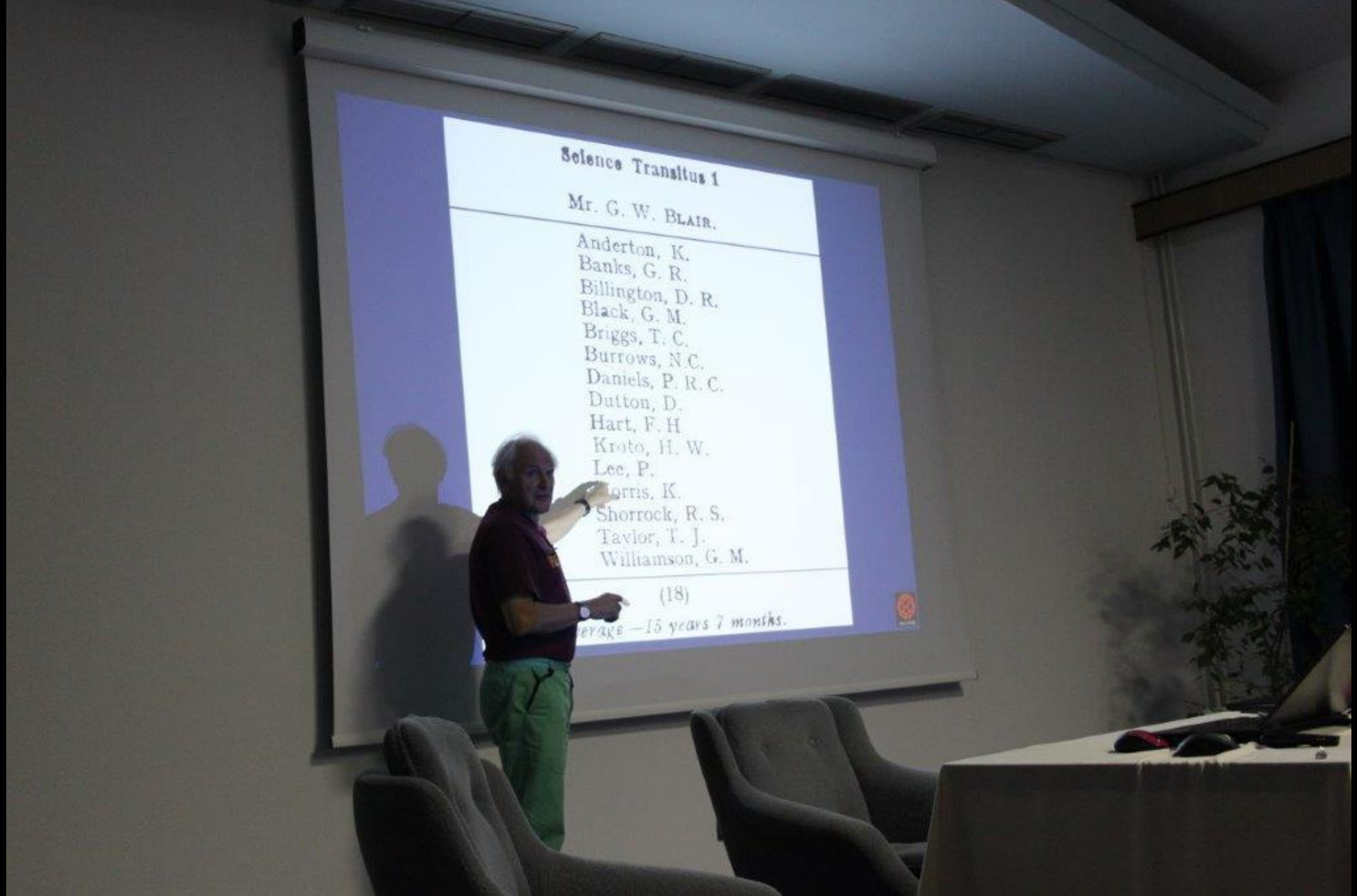



VAIO

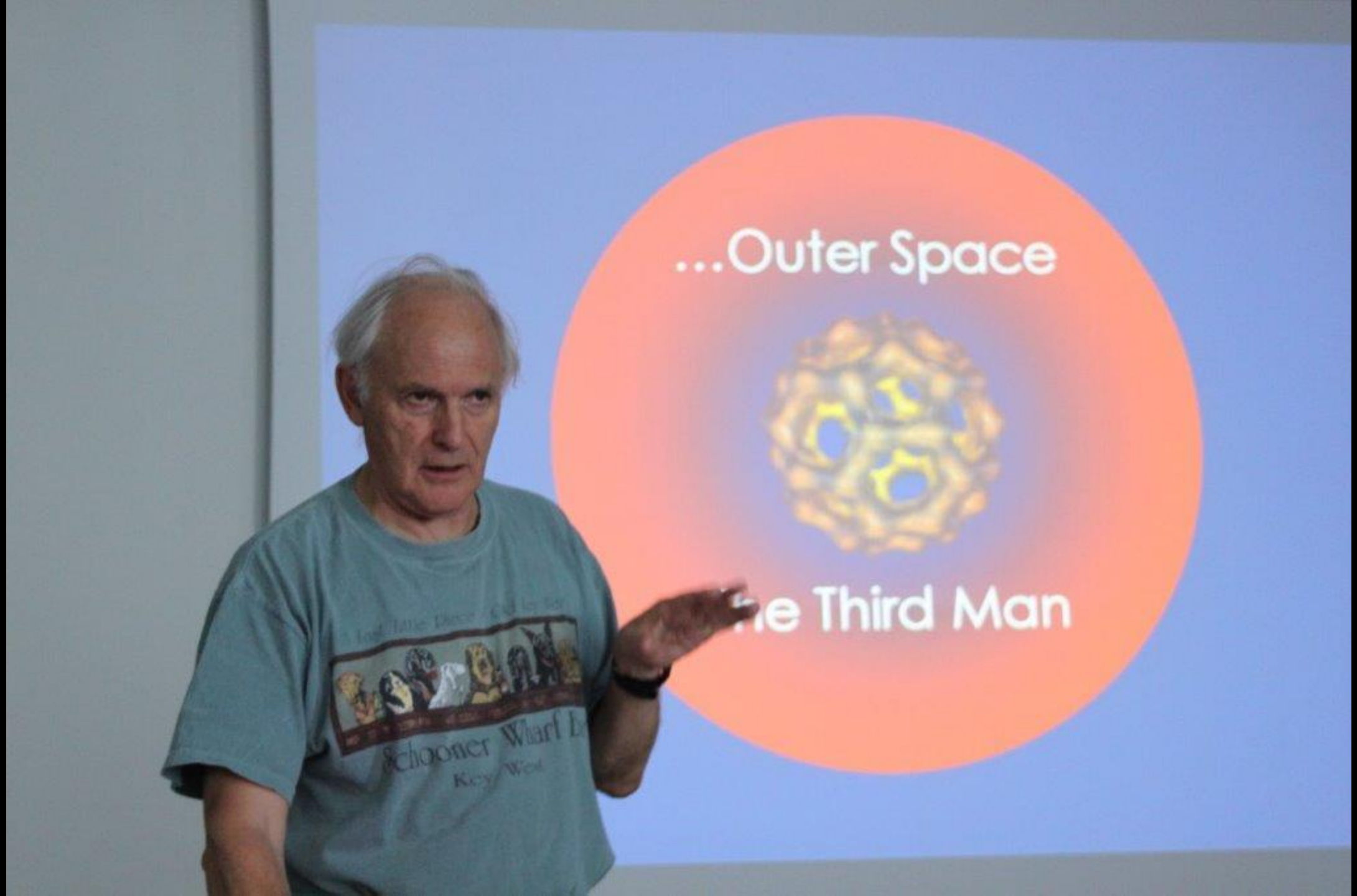

Tracking + Ecal + Hcal + Muons for |η|
Key:
Muon
Electron
Charged Hadron (e.g. Pion)
Neutral Hadron (e.g. Neutron)
Photon
0m
1m
2m
3m
4m
5m
4T
Electromagnetic Calorimeter
Hadron Calorimeter
Superconducting Solenoid
CALORIMETERS
ECAL
Scintillating PbWO4 crystals
HCAL
Plastic scintillator/brass sandwich

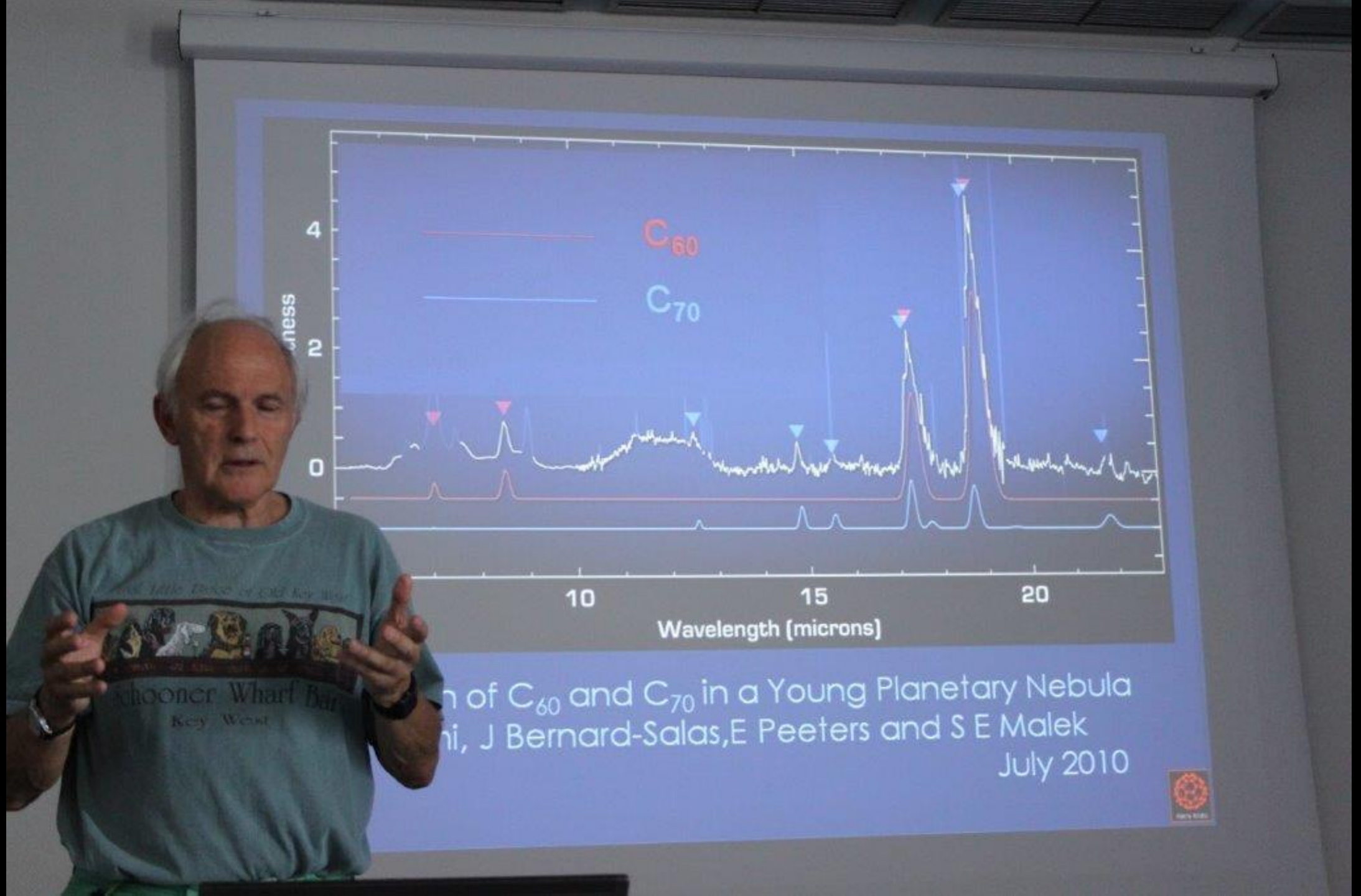

The story of neutron


"UR"-MINERALOGY
Diamond/Lonsdaleite
Graphite (C)
Moissanite (SiC)
Osbornite e(TiN)
Nierite (Si_3N_4)
Rutile (TiO_2)
Corundum (Al_2O_3)
Spinel ($MgAl_2O_4$)
Hibbonite ($CaAl_{12}O_{19}$)
Forsterite (Mg_2SiO_4)
Nano-particles TiC, ZrC, MoC, FeC, Fe-Ni metal in graphite
GEMS (silicate glass with metal and sulfide inclusions)
All types of chemical bonds


Science Transitus 1
Mr. G. W. Blair.
Anderton, K.
Banks, G. R.
Billington, D. R.
Black, G. M.
Briggs, T. C.
Burrows, N.C.
Daniels, P. R. C.
Dutton, D.
Hart, F. H
Kroto, H. W.
Lee, P.
Morris, K.
Shorrock, R. S.
Taylor, T. J.
Williamson, G. M.
(18)
Average —15 years 7 months.


Energy and matter
at the origin of life
Nick Lane
Research Department of Genetics, Evolution and Environmer
University College London

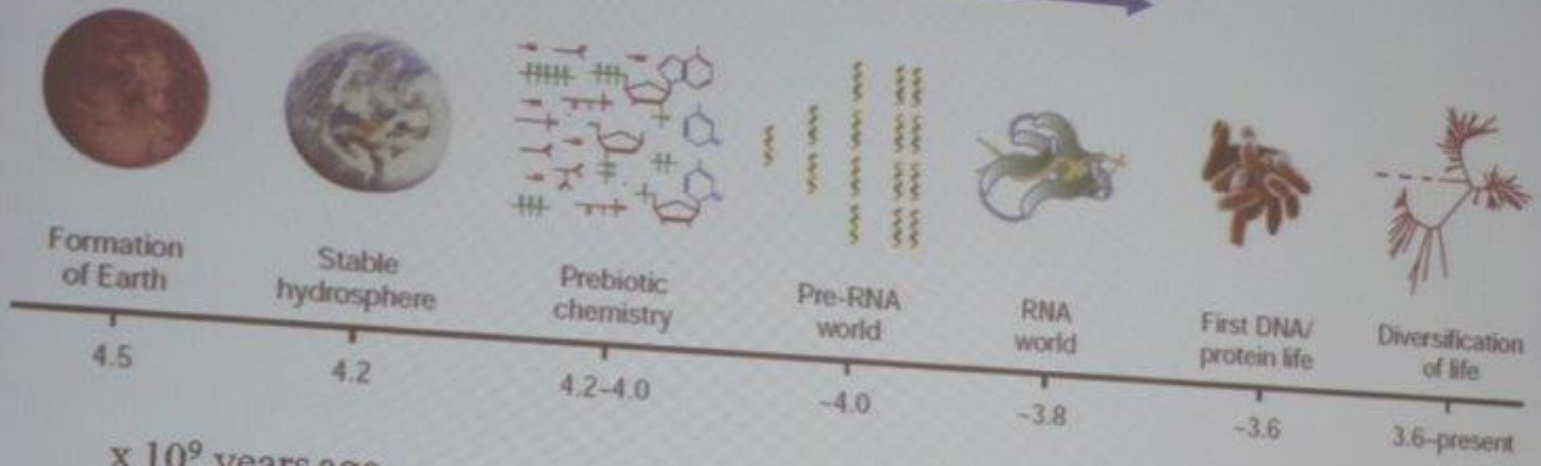

...Outer Space
he Third Man


4
2
0
C_{60}
C_{70}
10
15
20
Wavelength (microns)
n of C_{60} and C_{70} in a Young Planetary Nebula
ni, J Bernard-Salas,E Peeters and S E Malek
July 2010


Exploring Parity Violation in Chiral Molecules
Martin Willeke
Department of Materials, ETH Zürich
and
Martin Quack, Phys. Chem. Lab.,
ETH Zürich


ETH
The possible roles of amphiphilic molecules for the origin of life
Peter Walde
Department of Materials, ETH Zürich, Switzerland

Proposed active roles of amphiphilic molecules

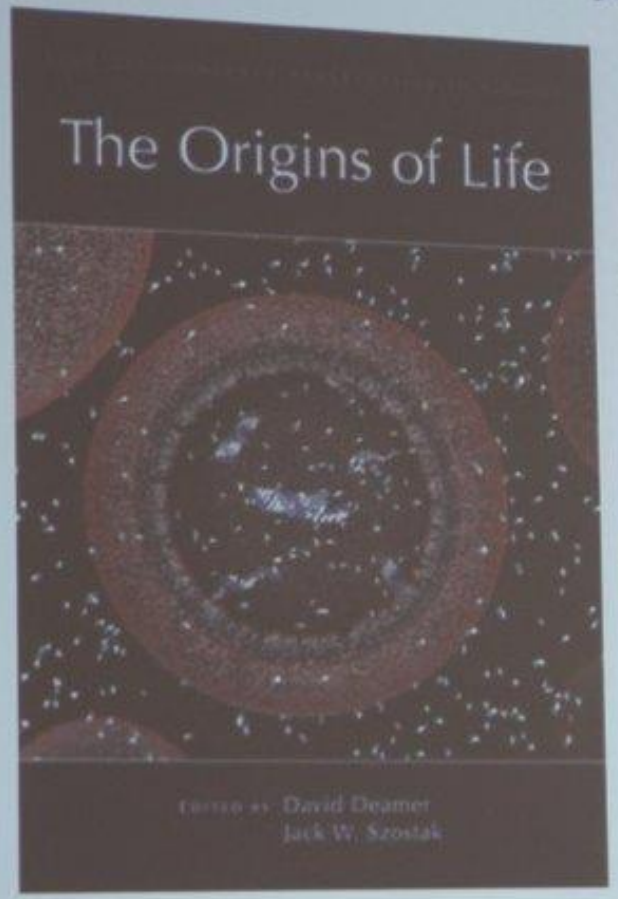


Joyce, G. F. (2002) *Nature*, 418, 214.

ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

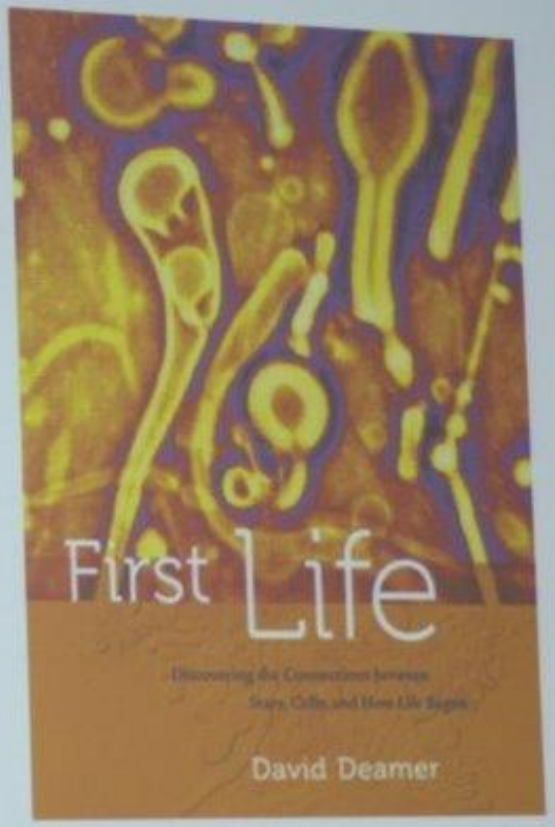
Hypothesis about the hypothetical precursors of the first cells



Cold Spring Harbor Laboratory Press, 2010.

protocells

Importance
of physico-chemical
processes
...
Not yet
biophysical!



University of California Press,, 2011.