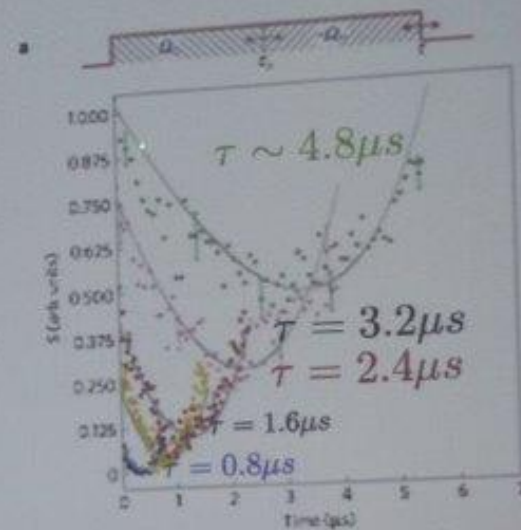
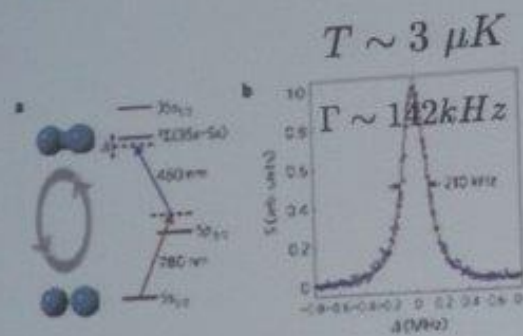






Atom-molecule coherence for ultralong-range Rydberg dimers

B. Butscher, J. Nipper, J. B. Balewski, L. Kukots, V. Bendkowsky, R. Löw and T. Pfau*



reversible chemical reaction

Optical frequency comb: Ideal source for ultrasensitive absorption spectroscopy

T. Baň¹, A. Foltynowicz², P. Masłowski³, F. Adler⁴ and J. Ye⁵

¹Institute of Physics, Slovak Academy of Sciences, 84511 Bratislava, Slovakia

²Department of Physics, Umeå University, Umeå, Sweden

³Institute of Physics, Wrocław University of Technology, ul. Gwiezdna 8, 51-100 Wrocław, Poland

⁴National Institute of Standards and Technology, Time & Frequency Division, 332 Broadway, Boulder, CO 80505

⁵NIST, National Institute of Standards and Technology and University of Colorado, Boulder, Colorado 80509-0440, USA



Optics conference, August 2012.



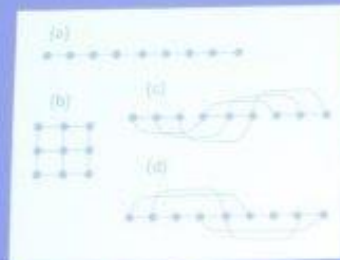








Four-dimensional photonic lattices and discrete tesseract solitons



Hrvoje Buljan

Department of Physics, University of Zagreb
hbujan@phy.hr

















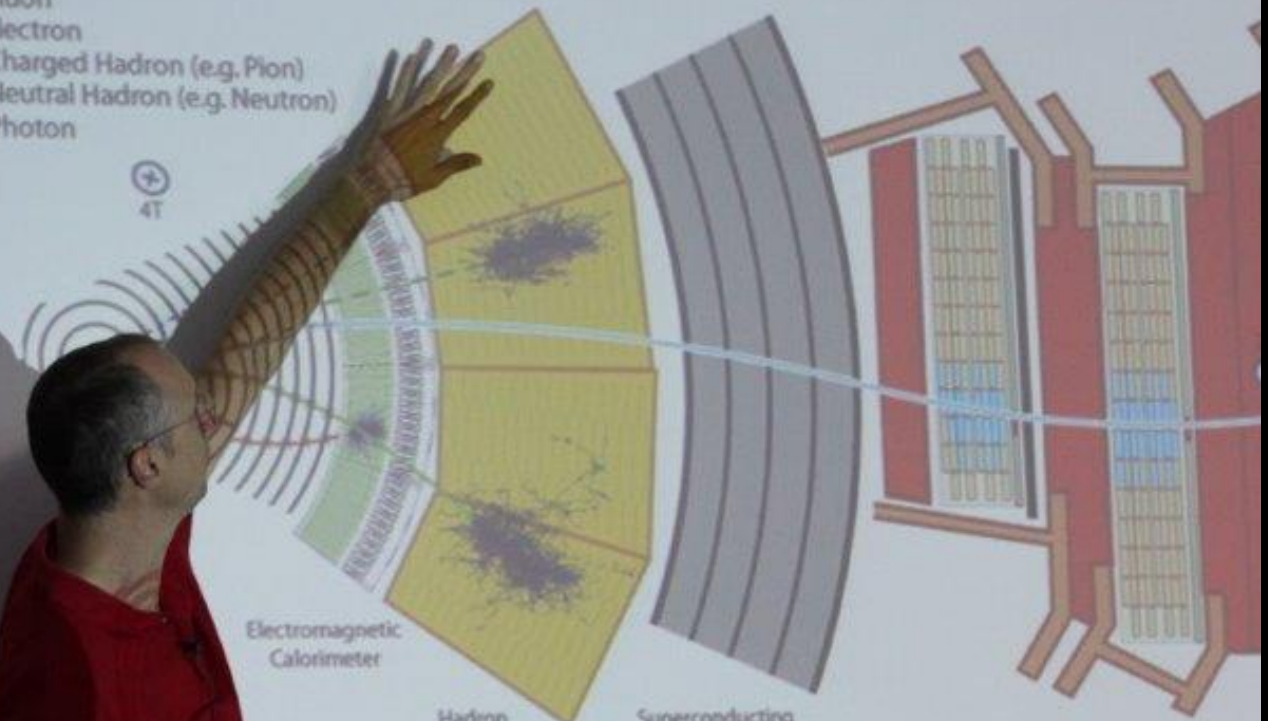


Tracking + Ecal + Hcal + Muons for $|\eta|$

Key:

- Muon
- Electron
- Charged Hadron (e.g. Pion)
- - - Neutral Hadron (e.g. Neutron)
- - - Photon

⊕
4T



Electromagnetic
Calorimeter

Hadron
Calorimeter

Superconducting
Solenoid

Iron return yoke
with Muon

CALORIMETERS

ECAL
Scintillating
 $PbWO_4$ crystals

HCAL
Plastic scintillator/brass
sandwich

Dr
Ch

The story of neutron



"UR"-MINERALOGY

- Diamond/Lonsdaleite
- Graphite (C)
- Moissanite (SiC)
- Osbornit ϵ (TiN)
- Nierite (Si₃N₄)
- Rutile (TiO₂)
- Corundum (Al₂O₃)
- Spinel (MgAl₂O₄)
- Hibbonite (CaAl₁₂O₁₈)
- Forsterite (Mg₂SiO₄)
- 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 Translatus 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.
- Shorrocks, R. S.
- Taylor, T. J.
- Williamson, G. M.

(18)

average - 15 years 7 months.



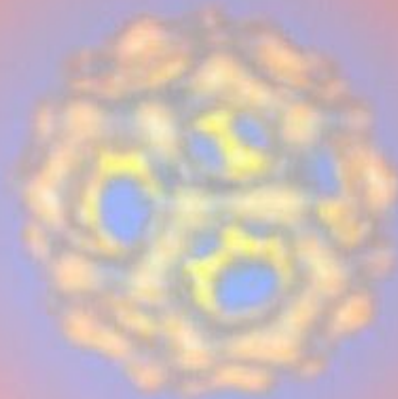


Energy and matter at the origin of life

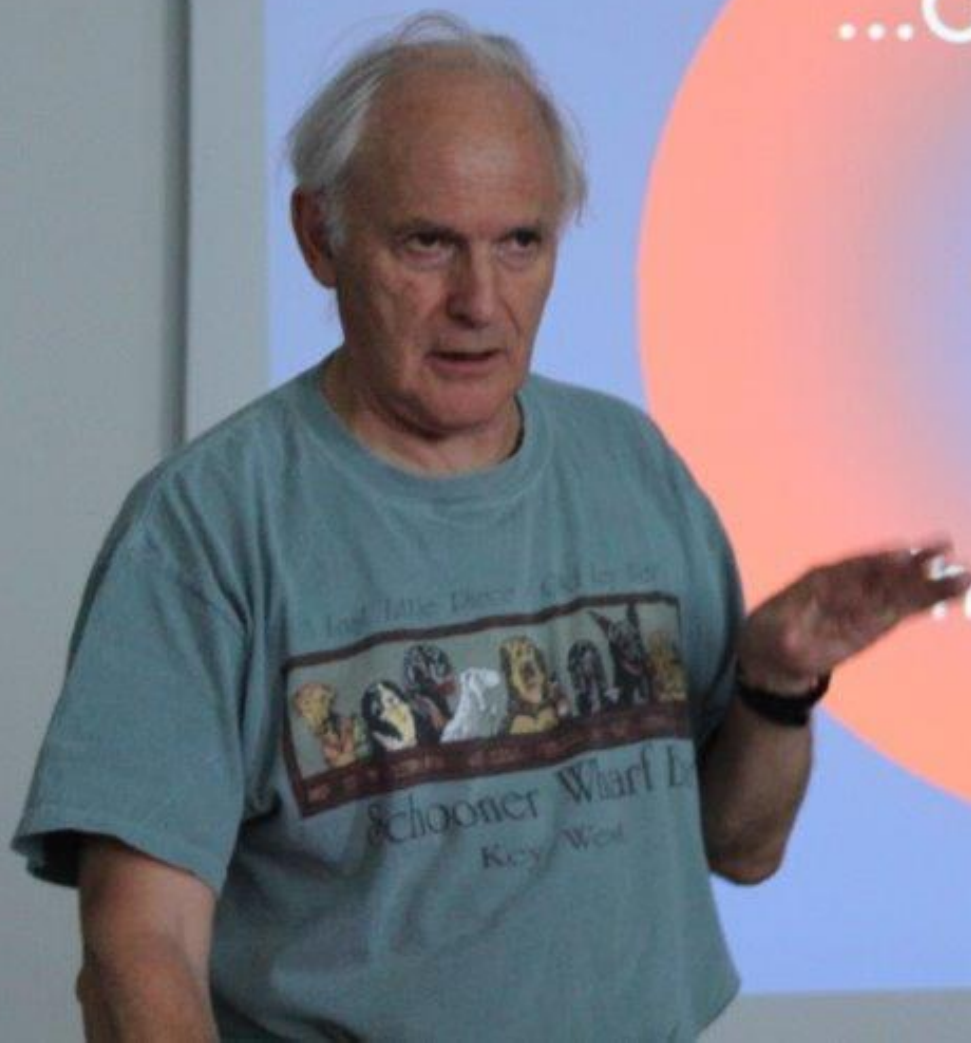
Nick Lane

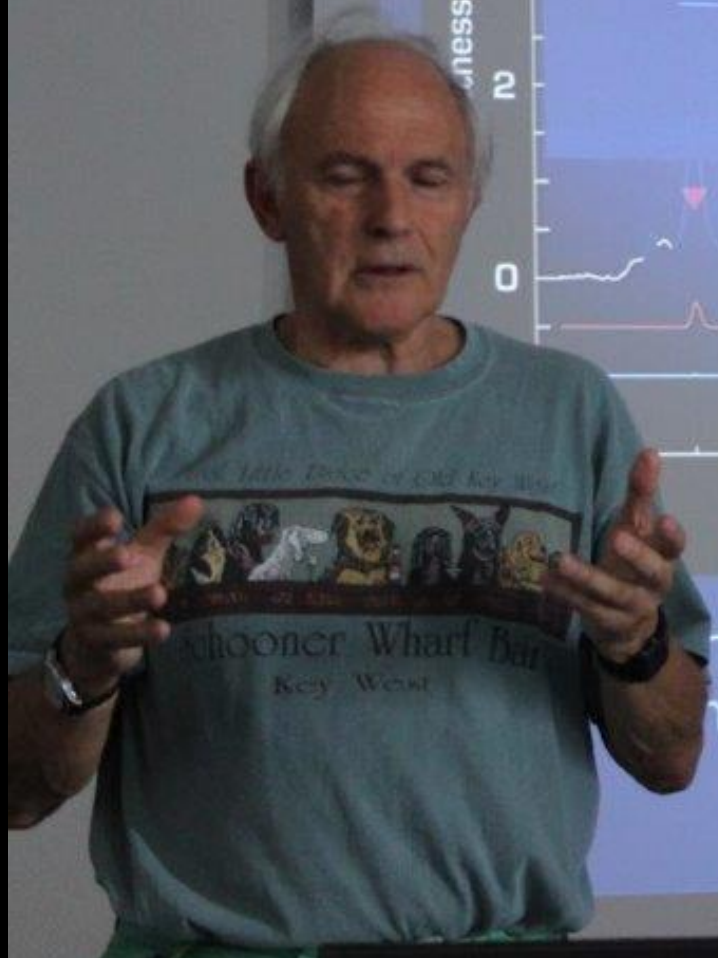
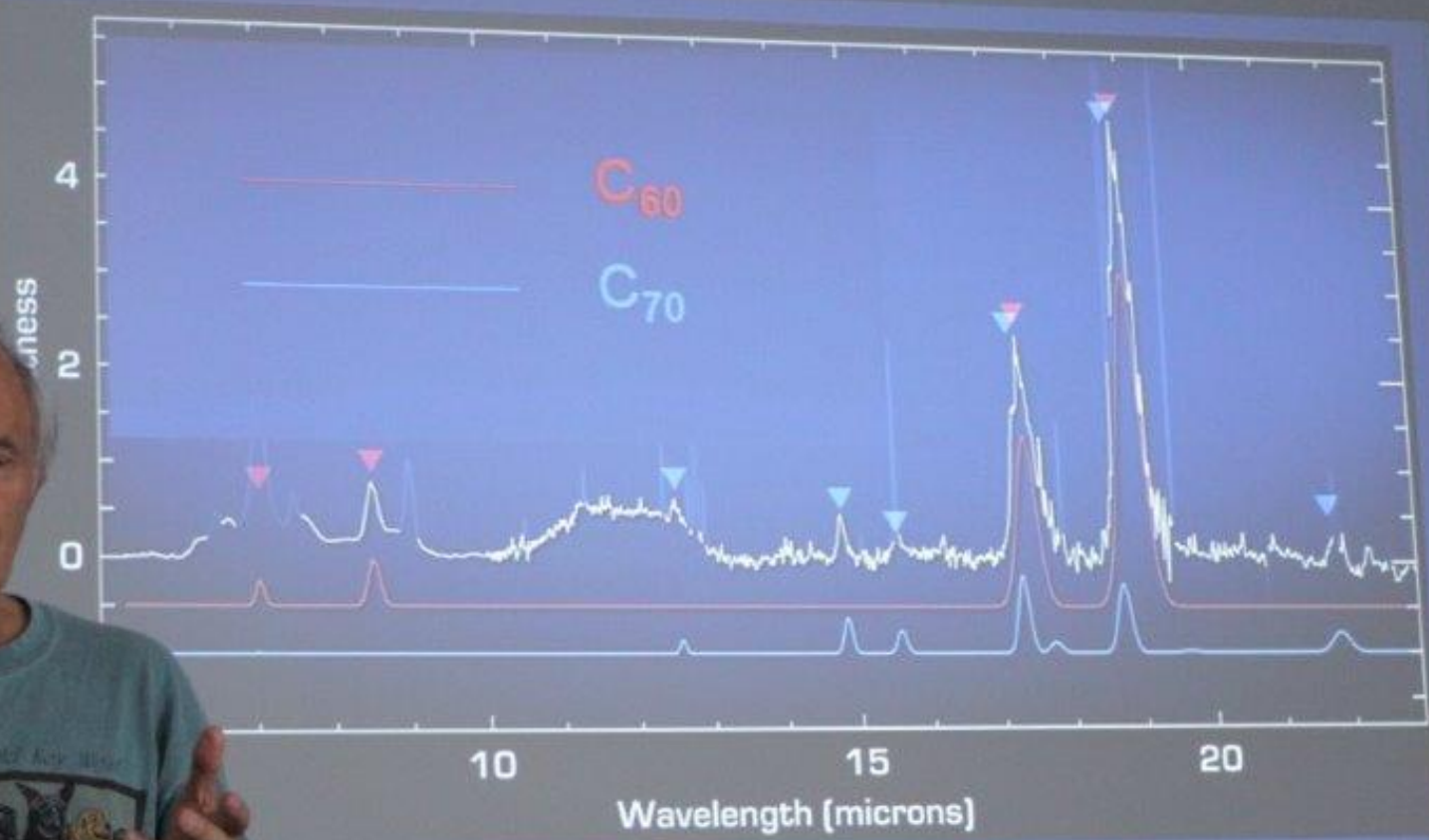
Research Department of Genetics, Evolution and Environment
University College London

...Outer Space



The Third Man






Detection of C₆₀ and C₇₀ in a Young Planetary Nebula
Miyamoto, J Bernard-Salas, E Peeters and S E Malek
July 2010





A man with a beard and glasses, wearing a light blue button-down shirt and jeans, stands in a conference room. He is gesturing with his hands while presenting. Behind him is a large projection screen displaying a slide. The slide has a yellow header with the title 'Exploring Parity Violation in Chiral Molecules'. Below the title, it lists the presenter's name, 'Martin Willeke', and his affiliations: 'Department of Materials, ETH Zürich' and 'Martin Quack, Phys. Chem. Lab., ETH Zürich'. In the foreground, there is a table with a white tablecloth, a laptop, and some other equipment. The room has a modern, professional feel with grey chairs and a white wall.

Exploring Parity Violation in Chiral Molecules

Martin Willeke

Department of Materials, ETH Zürich

and

Martin Quack, Phys. Chem. Lab.,

ETH Zürich















ETH
ETH Zürich
Department of Materials

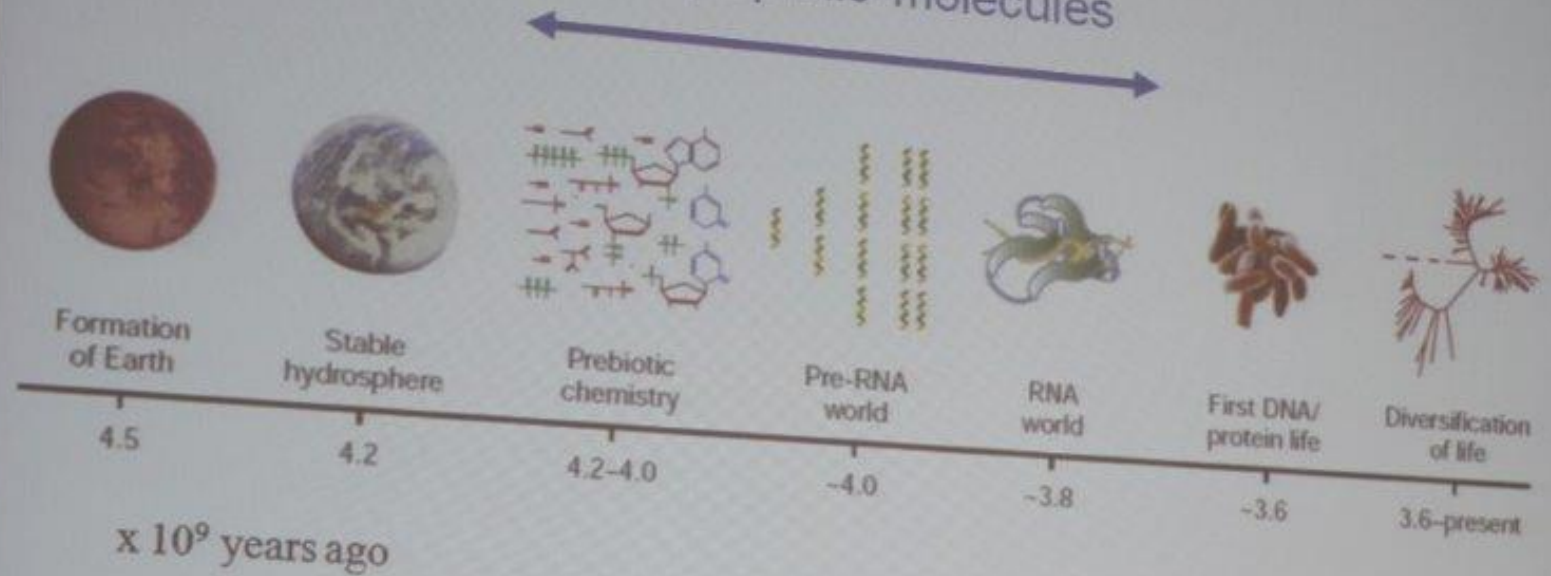
The possible roles of amphiphilic molecules for the origin of life

Peter Walde
Department of Materials, ETH Zürich, Switzerland



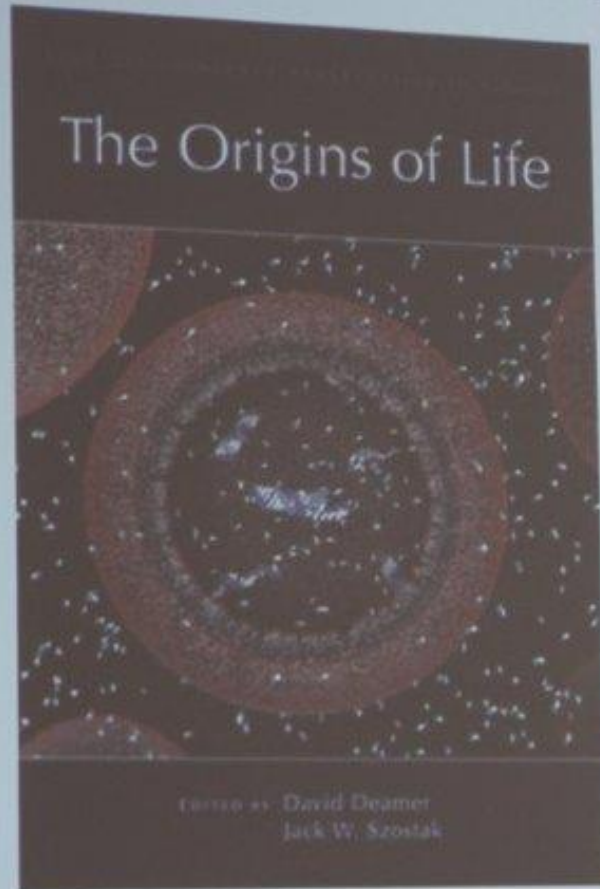
© ETH Zürich / Peter Walde, 2010

Proposed active roles of amphiphilic molecules



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

Hypothesis about the hypothetical precursors of the first cells

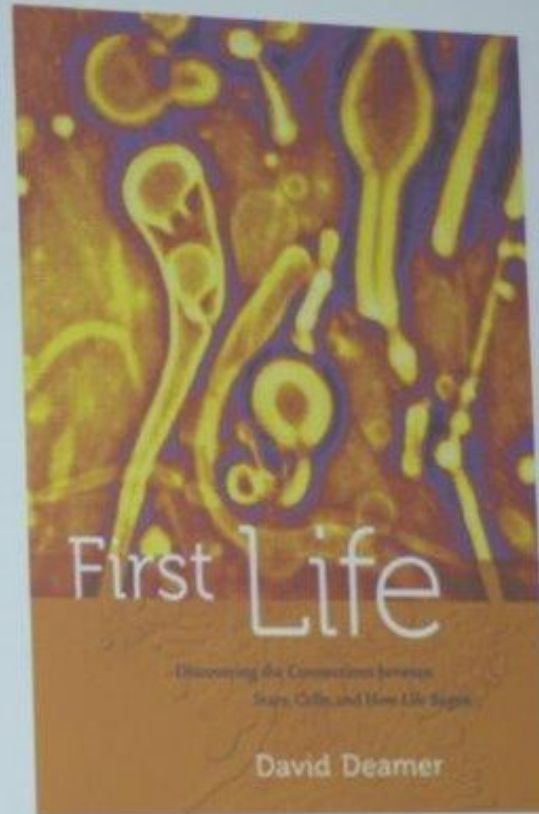


Cold Spring Harbor Laboratory Press, 2010.

protocells

Importance
of physico-chemical
processes

...
Not yet
biophysical!



University of California Press., 2011.

