

PHOTONIC BUTTERFLIES!

from structural color to photonics, through socio-chromisms

Daide COMORETTO

*Dipartimento di Chimica e
Chimica Industriale
Università di Genova*



M. Peleides

davide.comoretto@unige.it
www.rely-photonics.it

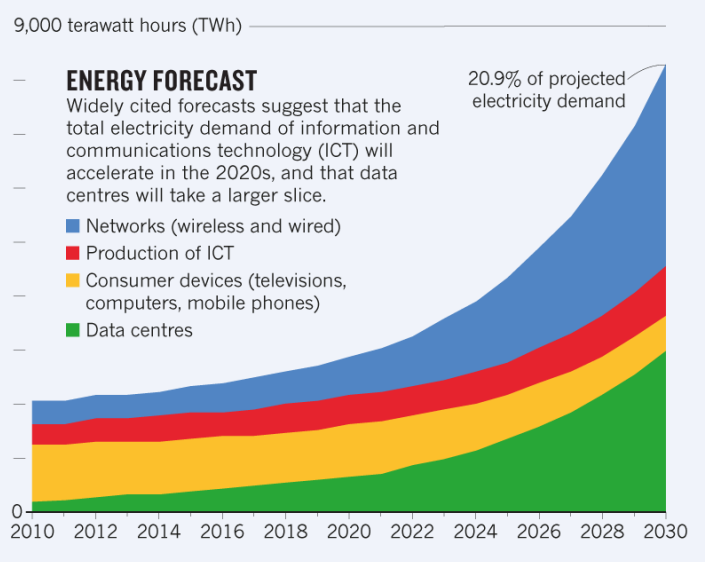
<https://www.wired.com/2016/12/morpho-butterflies-blue-isnt-seems/>

RELY PHOTONICS

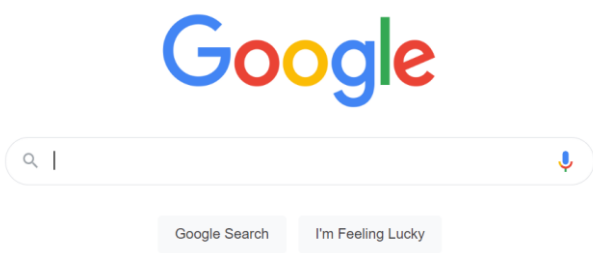
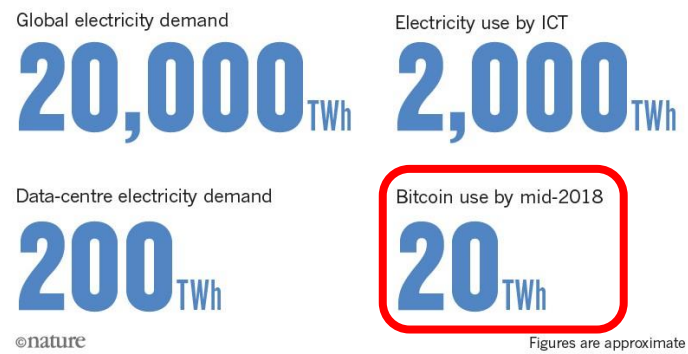


PHOTONICS SUSTAINABILITY

- **THE CLOUD IS NOT A MYTHOLOGICAL LOCATION MADE BY MOISTURE & ELECTROMAGNETIC WAVES WHERE EVERYTHING MAGICALLY WORKS.**
- **DATA CENTERS USE MORE ELECTRICITY THAN ENTIRE COUNTRIES.**
- **ICT ACCOUNTS FOR 10% OF GLOBAL ELECTRICITY DEMAND.**
- **ARE WE AWARE of the ENERGY FOOTPRINT of OUR PERSONAL DIGITAL LIFESTYLE?**



ENERGY SCALE



A SINGLE "SEARCH" = TURN-ON 60 W LIGHT BULB for 17 SECONDS

<https://www.nature.com/articles/d41586-018-06610-y> (2018)

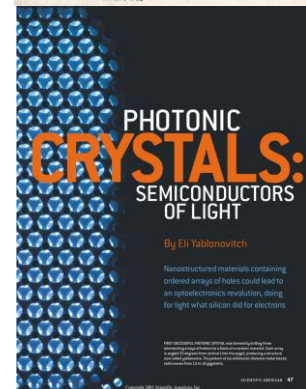
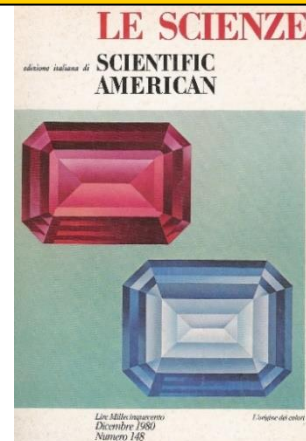
CONCLUSIONS

- **I hope this journey into the rainbow of colors could stimulate your intellectual curiosity**
- **I wish You a bright future!**

SUGGESTED READINGS

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www.rely-photonics.it

Farf



passando per le sociocrom



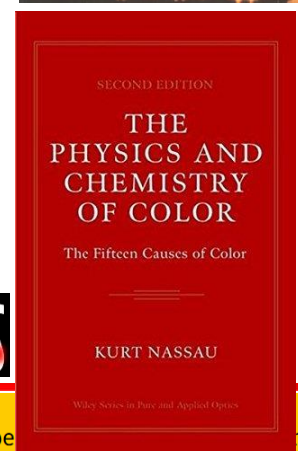
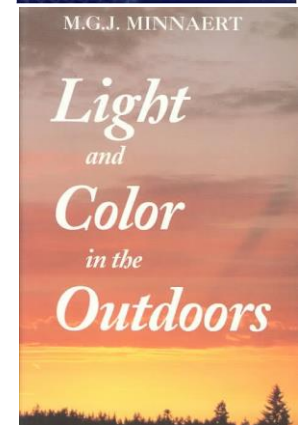
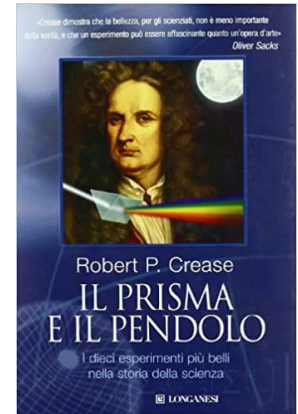
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re dell'Università di Genova

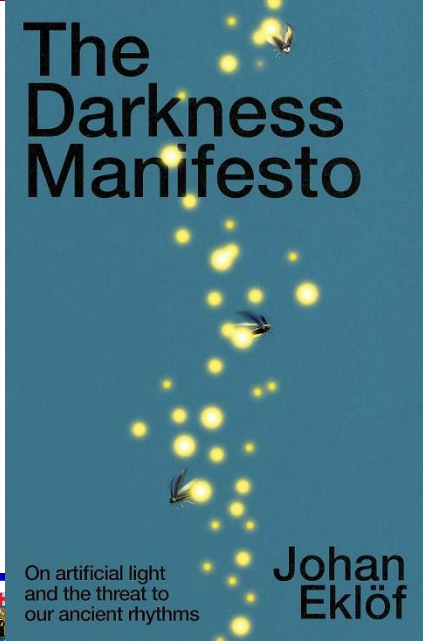
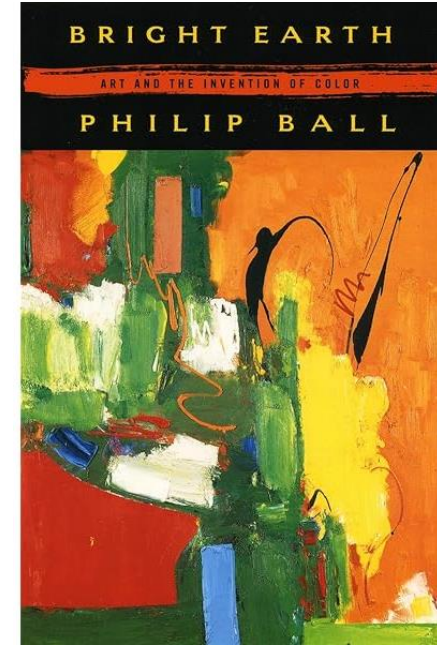
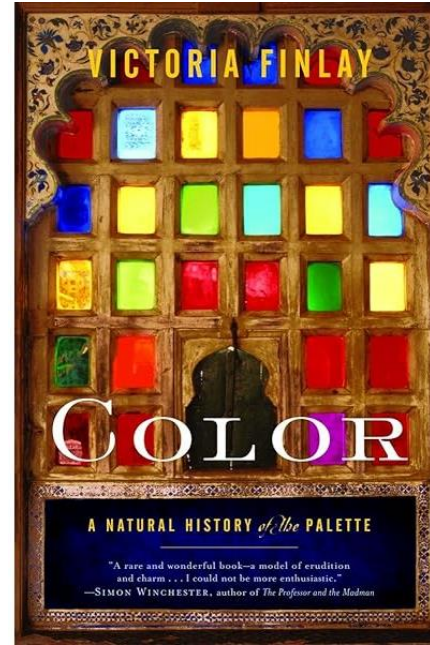
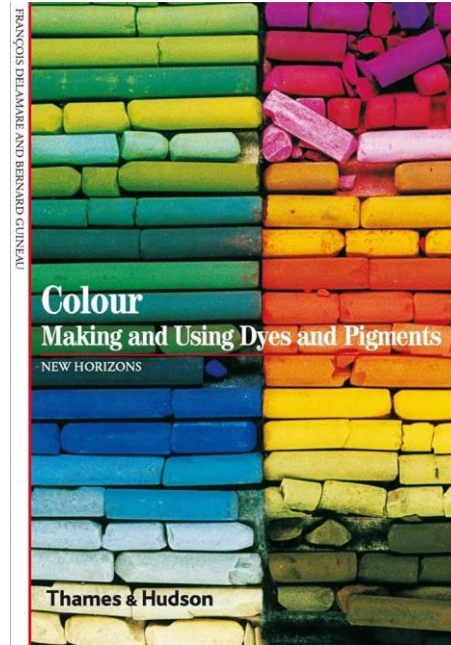
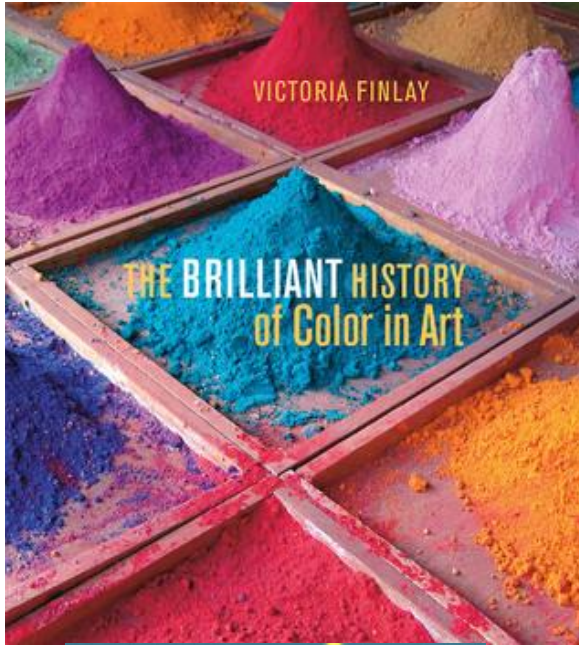
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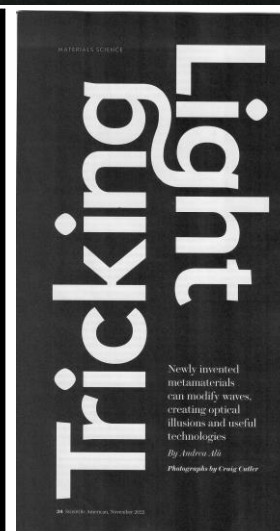
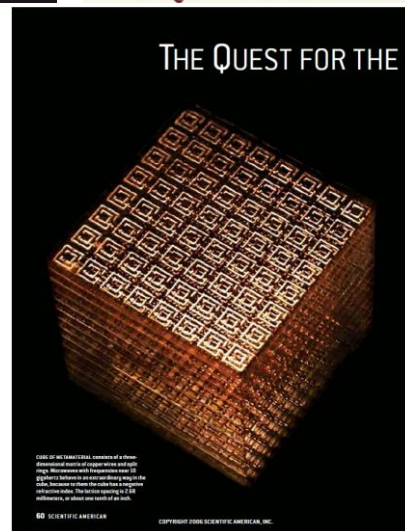
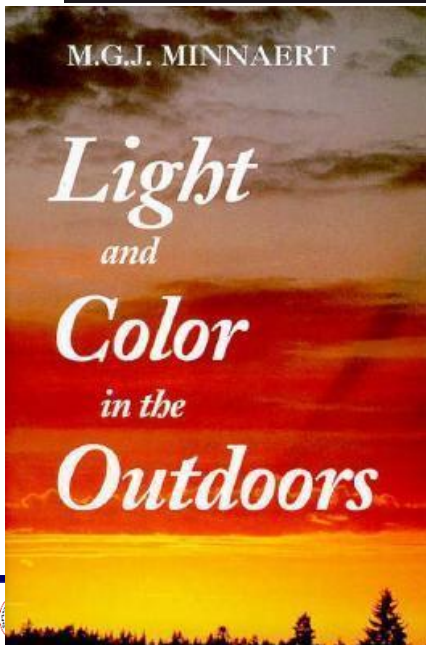
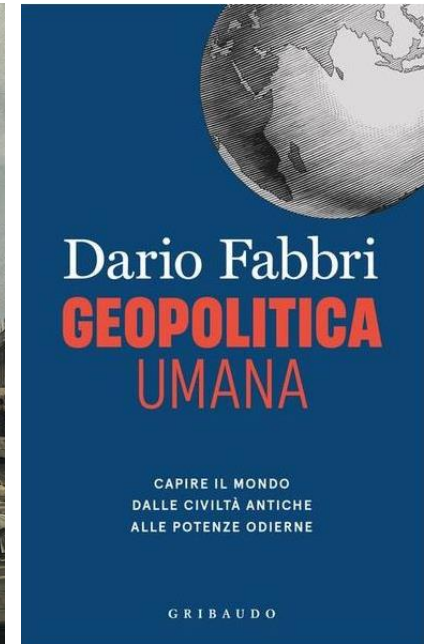
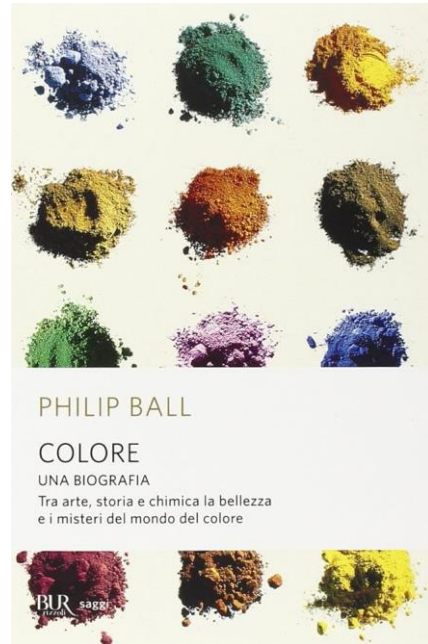
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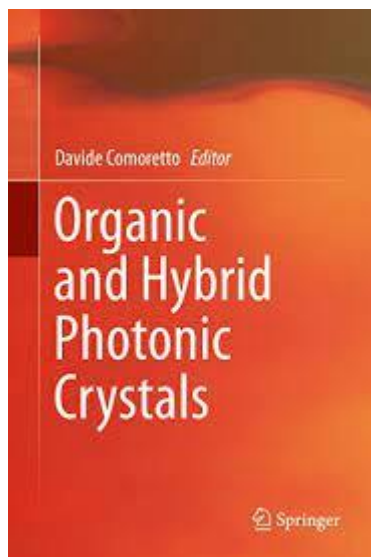
READING SUGGESTIONS



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REVIEW PHOTONICS



Biomimetics:

Lessons on optics
from nature's school

Ross C. McPhedran and Andrew R. Parker

The spectacular colors of living creatures are often produced by intricate arrays of photonic elements, including some that researchers wouldn't otherwise have thought of.

Physics Today, p. 32, June 2015

Rapid self-assembly of brush block copolymers to photonic crystals

Benjamin R. Sveinbjörnsson^{a,1}, Raymond A. Weitekamp^{a,b,1}, Garret M. Miyake^a, Yan Xia^a, Harry A. Atwater^b, and Robert H. Grubbs^{b,2}

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Chem. Rev. **1999**, *99*, 1935–1961

Nano-Optics in the Biological World: Beetles, Butterflies, Birds, and Moths

Mohan Srinivasarao*

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Interface

J. R. Soc. Interface (2005) **2**, 1–17
doi:10.1098/rsif.2004.0026
Published online 15 February 2005

REVIEW

A geological history of reflecting optics

Andrew Richard Parker†

Appl. Phys. B **78**, 257–260 (2004)
DOI: 10.1007/s00340-004-1419-4

T. FUHRMANN^{1,✉}
S. LANDWEHR¹
M. EL RHARBI-KUCKI¹
M. SUMPER²

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Interface

Gold bugs and beyond: a review of iridescence and structural colour mechanisms in beetles (Coleoptera)

Ainsley E Seago, Parrish Brady, Jean-Pol Vigneron and Tom D Schultz

J. R. Soc. Interface 2009 **6**, doi: 10.1098/rsif.2008.0354.focus first published online 28 October 2008

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Phil. Trans. R. Soc. A (2009) **364**, 1759–1782
doi:10.1098/rsta.2009.0016

REVIEW

Natural photonics for industrial inspiration

BY ANDREW R. PARKER^{1,2,*}

¹Department of Zoology, Natural History Museum, London SW7 5BD, UK
²Department of Biological Sciences, University of Sydney, NSW 2006, Australia

There are two considerations for optical biomimetics: the diversity of submicrometre architectures found in the natural world, and the industrial manufacture of these. A review exists on the latter subject, where current engineering methods are considered along with those of the natural cells. Here, on the other hand, I will provide a modern review of the different categories of reflectors and antireflectors found in animals, including their optical characterization. The purpose of this is to inspire designers within the \$2 billion annual optics industry.

1935

Keywords: optics; biomimetics; photonics

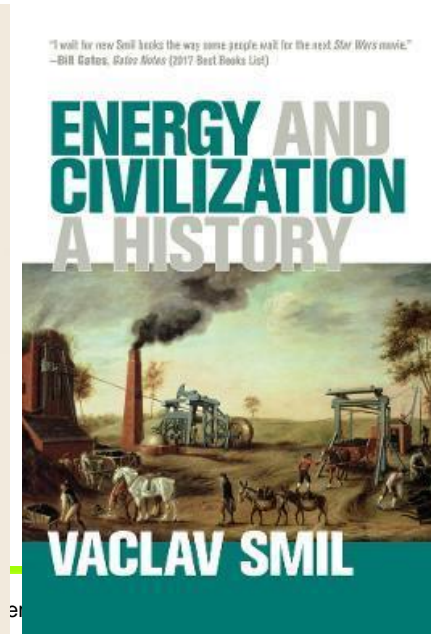
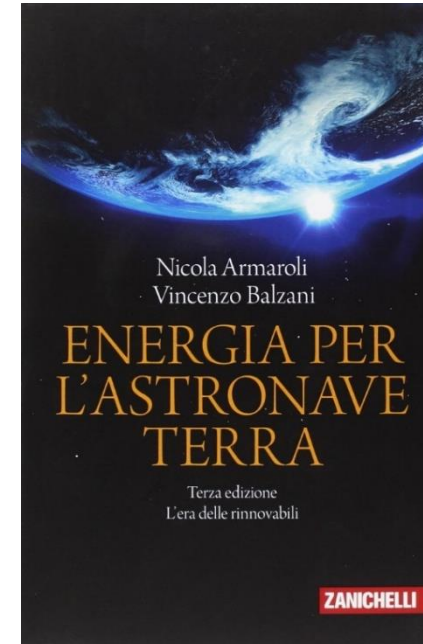
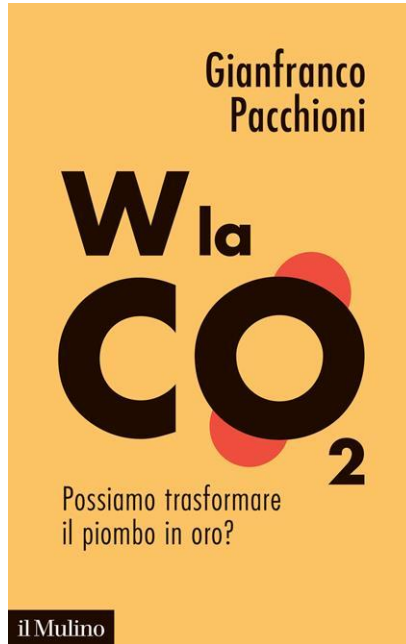
Applied Physics B
Lasers and Optics

Diatoms as living photonic crystals

¹Department of Sciences and Center of Interdisciplinary Nanostructure Science and Technology – CINSaT, University of Kassel, Heinrich-Plett-Str. 40, 34109 Kassel, Germany
²Faculty of Sciences III, University of Regensburg, Universitätsstr. 31, 93053 Regensburg, Germany



SUGGESTED READINGS



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(PETALS, 2020TS9LXS)



RAISE



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ROBOTICS AND AI FOR SOCIO-ECONOMIC EMPOWERMENT (RAISE)



. SPOKE 3

Protezione e cura dell'ambiente