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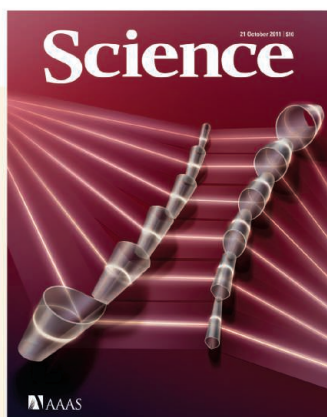


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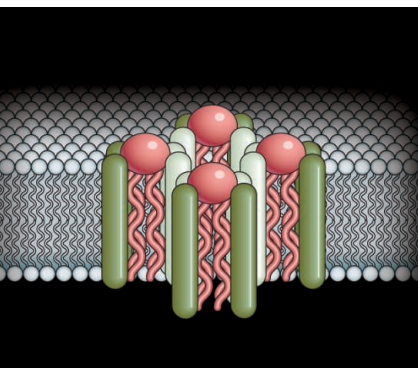
COVER

Illustration of a generalized form of Snell's Law that fully accounts for light interaction with subwavelength structured materials, which can produce phase jumps at the interface between media. To illustrate this effect, origami ribbons are folded into tapered cylinders (phase jumps at interfaces), and the lines (light rays) form angles that depend on the degree of taper. Initially diverging rays converge after passing through two interfaces. See page 333.

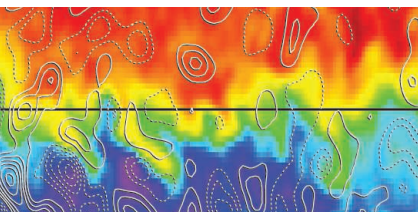
Image: Nanfang Yu/Harvard University; Yi Tan and Jinhua Tan

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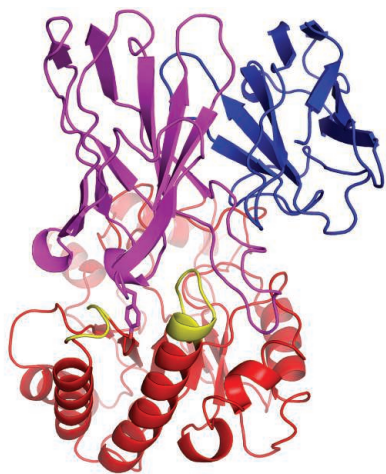
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Large ocean eddies are the cause of some sea-surface height and chlorophyll anomalies previously ascribed to Rossby waves.
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- 333** Light Propagation with Phase Discontinuities: Generalized Laws of Reflection and Refraction
N. Yu et al.
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>> *Perspective p. 317*
- 338** Detection of the Water Reservoir in a Forming Planetary System
M. R. Hogerheijde et al.
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>> *Perspective p. 316*
- 340** Supramolecular Linear Heterojunction Composed of Graphite-Like Semiconducting Nanotubular Segments
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A supramolecular self-assembly approach is used to make a nanotubular heterojunction.
- 343** Dynamics of the Reaction of Methane with Chlorine Atom on an Accurate Potential Energy Surface
G. Czako and J. M. Bowman
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- 347** 800,000 Years of Abrupt Climate Variability
S. Barker et al.
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- 351** Pre-Clovis Mastodon Hunting 13,800 Years Ago at the Manis Site, Washington
M. R. Waters et al.
Further dating of the Manis site shows that people were hunting mastodons in North America by 14,000 years ago.
>> *News story p. 302; Science Podcast*
- 354** Information Transduction Capacity of Noisy Biochemical Signaling Networks
R. Cheong et al.
Noise limits information transfer through a single signaling pathway in a single cell to just one bit.
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F. H. Login et al.
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- 376** Antagonists Induce a Conformational Change in cIAP1 That Promotes Autoubiquitination
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Paired bursting in coupled neurons depresses electrical synapses while their asymmetry increases after unidirectional use.
>> *Perspective p. 315*

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Structural Dynamics of a Catalytic Monolayer Probed by Ultrafast 2D IR Vibrational Echoes

D. E. Rosenfeld et al.

A method to track fast vibrational motion in solution has been extended to catalytically important solid/liquid interfaces.

10.1126/science.1211350

Wolbachia Enhance *Drosophila* Stem Cell Proliferation and Target the Germline Stem Cell Niche

E. M. Fast et al.

A bacterial endosymbiont up-regulates mitosis of *Drosophila* germline stem cells and blocks programmed cell death.

10.1126/science.1209600

Endocannabinoid Hydrolysis Generates Brain Prostaglandins That Promote Neuroinflammation

D. K. Nomura et al.

A new tissue-specific pathway for the synthesis of proinflammatory prostaglandins is described.

10.1126/science.1209200

Recent Synchronous Radiation of a Living Fossil

N. S. Nagalingum et al.

Despite their ancient origin, the majority of extant cycad species radiated within the past 10 million years.

10.1126/science.1209926

Polarization of PAR Proteins by Advective Triggering of a Pattern-Forming System

N. W. Goehring et al.

Patterning of *Caenorhabditis elegans* zygotes involves passive as well as active mechanisms.

10.1126/science.1208619

TECHNICALCOMMENTS

Comment on "How Cats Lap: Water Uptake by *Felis catus*"

M. Nauenberg

Full text at www.sciencemag.org/cgi/content/ful/334/6054/311-b

Response to Comment on "How Cats Lap: Water Uptake by *Felis catus*"

R. Stocker et al.

Full text at www.sciencemag.org/cgi/content/ful/334/6054/311-c

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Highlights From Our Daily News Coverage

Cute TV Chimps May Harm Their Wild Brethren Seeing dressed-up chimpanzees doesn't make viewers care more.

<http://scim.ag/chimpads>

Seaweed With a Deadly Touch

Toxins on the surfaces of common South Pacific algae are deadly to corals.

<http://scim.ag/CSlamphora>

Winged Robots Hint at the Origins of Flight

What were primitive wings used for before bird ancestors could fly?

<http://scim.ag/robot-flight>

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The Signal Transduction Knowledge Environment

18 October issue: <http://scim.ag/ss101811>

RESEARCH ARTICLE: *Agrobacterium* Counteracts Host-Induced Degradation of Its Effector F-Box Protein

S. Magori and V. Citovsky

A plant pathogen prevents degradation of its key virulence factor in infected host cells.

REVIEW: Structural Basis for Activation and Inhibition of Class I Phosphoinositide 3-Kinases

O. Vadas et al.

The regulatory interactions between PI3Ks and their binding partners could be exploited for therapies.

JOURNAL CLUB: α -Synuclein Promotes Neuroprotection Through NF- κ B-Mediated Transcriptional Regulation of Protein Kinase C δ

R. Aoki and Y. R. Li

α -Synuclein may protect dopaminergic neurons from apoptosis by reducing the abundance of a kinase involved in cell death.

FUNDING SOURCES

Check out the latest update in opportunities for funding signaling research and training.

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Integrating Medicine and Science

19 October issue: <http://scim.ag/stm101911>

FOCUS: Containing the *Contagion*—Treating the Virus That Inspired the Film

B. Lee

RESEARCH ARTICLE: A Neutralizing Human Monoclonal Antibody Protects African Green Monkeys from Hendra Virus Challenge

K. N. Bossart et al.

A neutralizing human monoclonal antibody can fully protect nonhuman primates from disease after a lethal Hendra virus challenge.

PERSPECTIVE: Hedgehog Rushes to the Rescue of the Developing Cerebellum

O. Baud and P. Gressens

RESEARCH ARTICLE: A Small-Molecule Smoothed Agonist Prevents Glucocorticoid-Induced Neonatal Cerebellar Injury

V. M. Heine et al.

RESEARCH ARTICLE: Preterm Cerebellar Growth Impairment After Postnatal Exposure to Glucocorticoids

E. W. Y. Tam et al.

A small molecule that targets the sonic hedgehog pathway protects against cerebellar injury caused by glucocorticoids, which may be given to preterm infants for treating lung disease.

SCIENCE CAREERS

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Tooling Up: Views on an Interview, Part 1

D. Jensen

Scott Jackson's interview at ABC technologies ranges from mundane to terrifying.

http://scim.ag/TU_Views_1

Perspective: An Auxiliary (Research) Engine

D. Albert

To attain your goals, it is sometimes necessary to employ indirect means.

http://scim.ag/Aux_Engine

Content Collection: Careers at Nonprofits

E. Pain

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http://scim.ag/CC_Nonprofits

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