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>> Science Podcast
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www.sciencemag.org/extra/climate.

COVER
A circulator for sound. The arrows represent acoustic signals
flowing through the device (diameter: ~20 centimeters), which
circulates sound in a nonreciprocal fashion: Signals can flow from
left to top, from top to right, and from right to left, but not in the
opposite directions. This creates one-way communication channels
for sound, allowing listeners to hear but not be heard in return.
See pages 495 and 516.

Image: Erik Zumalt, Cockrell School of Engineering, The University of
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504 Development-Inspired Reprogramming of the Mammalian Central Nervous System
R. Amamoto and P. Arlotta
Review Summary; for full text: http://dx.doi.org/10.1126/science.1239882

505 Timing Mechanism Dependent on Cell Division Is Invoked by Polycym Eviction in Plant Stem Cells
B. Sun et al.
A regulatory circuit controlling plant flowering genes leads the way to reconstruction of a time-delay control system.
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506 Exome Sequencing Links Corticospinal Motor Neuron Disease to Common Neurodegenerative Disorders
G. Novarino et al.
Analysis of hereditary spastic paraplegia genes identifies mutants involved in human neurodegenerative disease.
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512 Ultrafast Long-Range Charge Separation in Organic Semiconductor Photovoltaic Diodes
S. Gélinas et al.
Ultrafast spectroscopy shows electrons and holes separating faster than simple diffusion would imply in organic photovoltaics.
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516 Sound Isolation and Giant Linear Nonreciprocity in a Compact Acoustic Circulator
R. Fleury et al.
Directional fluid flow is used to control and isolate the propagation of sound.
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519 Unlocking the Potential of Cation-Disordered Oxides for Rechargeable Lithium Batteries
J. Lee et al.
Cation-disordered compounds achieve high lithium (Li) storage capacity, with scope for high-energy density Li battery electrodes.

522 Low Core–Mantle Boundary Temperature Inferred from the Solidus of Pyrolite
R. Nomura et al.
High-pressure experiments suggest that Earth’s mantle melts at lower temperatures than previously predicted.

525 A Mechanosensory Pathway to the Drosophila Circadian Clock
A. Simoni et al.
Flies use a mechanosensory organ to sense a low-frequency vibration and reset the brain’s biological clock.

529 Marine Tubeworm Metamorphosis Induced by Arrays of Bacterial Phage Tail–Like Structures
N. J. Shikuma et al.
Benthic marine larval development is triggered by a bacterially expressed structure of phage origin.

533 Reversal of Female Infertility by Chk2 Ablation Reveals the Oocyte DNA Damage Checkpoint Pathway
E. Bolcun-Filas et al.
Elucidation of a system that monitors DNA damage in both meiotic and resting oocytes in mice is shown.

536 Mating Induces Shrinking and Death in Caenorhabditis Mothers
C. Shi and C. T. Murphy
Sperm and seminal fluid cause Caenorhabditis mothers to die shortly after they produce offspring.

544 Male Hormones Induce Shrinking and Death in Caenorhabditis Males Shorten the Life Span of C. elegans Hermaphrodites via Secreted Compounds
T. J. Maures et al.
Male nematodes produce a soluble signal that shortens the life span of worms of the opposite sex.

548 Savanna Vegetation-Fire-Climate Relationships Differ Among Continents
C. E. R. Lehmann et al.
Evolution cannot be overlooked when aiming to predict the potential global impacts on savanna dynamics in a warming world.

552 Effector Specialization in a Lineage of the Irish Potato Famine Pathogen
S. Dong et al.
A potato pathogen has changed one of its protease inhibitors that targets its new host plant protease.

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