Cover
Optical vortices emitted by an array of silicon ring resonators.
The helical phase fronts, indicated by spirals, denote photons with orbital angular momentum. Emission results from the embedded angular gratings that extract the light waves traveling around the ring. The small emitters (diameter: 8 micrometers) can be integrated on a large scale into photonic integrated circuits, enabling new applications in optical communications and sensing, quantum photonics, and lab-on-a-chip. See page 363.

Image: Yue Zhang (ciel924@126.com), based on data from Xinlun Cai, Jiangbo Zhu, and Siyuan Yu
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344 Anticipating Critical Transitions
M. Scheffer et al.

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349 Transcriptional Architecture and Chromatin Landscape of the Core Circadian Clock in Mammals
N. Koike et al.
A 1-day reconstruction of transcriptional events reveals the influence of the circadian clock across the genome.
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355 Jet-Launching Structure Resolved Near the Supermassive Black Hole in M87
S. S. Doeleman et al.
High-resolution observations of the jet in the galaxy M87 probe structures very close to the galaxy’s central black hole.

358 Self-Assembled Colloidal Superparticles from Nanorods
T. Wang et al.
Colloidal rods self-assemble into semiconducting superparticles with a shape controlled by the number of rods.

363 Integrated Compact Optical Vortex Beam Emitters
X. Cai et al.
Microring resonators embedded with angular gratings are used to generate orbital angular momentum states of light.
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366 Lethally Hot Temperatures During the Early Triassic Greenhouse
Y. Sun et al.
Global warming during the Early Triassic was so severe that equatorial latitudes were uninhabitable for many plants and animals.
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370 A Complete Terrestrial Radiocarbon Record for 11.2 to 52.8 kyr B.P.
C. Bronk Ramsey et al.
Radiocarbon measurements of samples from Lake Suigetsu, Japan, extend the 14C time scale back to more than 50,000 years ago.
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374 Genomic Variation in Seven Khoe-San Groups Reveals Adaptation and Complex African History
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Cutting-edge genomic approaches test hypotheses about the roots of human history in southern African indigenous populations.

379 Cold-Inducible RNA-Binding Protein Modulates Circadian Gene Expression Posttranscriptionally
J. Morf et al.
An RNA-binding protein whose cyclic accumulation is regulated by body temperature confers robustness to circadian oscillators.
>> Perspective p. 338; Research Article p. 349

384 Real-Time Evolution of New Genes by Innovation, Amplification, and Divergence
J. Näsvall et al.
Experimental validation of how new genes with divergent functions can evolve within a few thousand generations is described.
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387 Metagenome Mining Reveals Polytheonamides as Posttranslationally Modified Ribosomal Peptides
M. F. Freeman et al.
Large toxins that comprise many modified and D-amino acids are ribosomally synthesized and then derivatized.

390 Processing and Subcellular Trafficking of ER-Tethered EIN2 Control Response to Ethylene Gas
H. Qiao et al.
The plant hormone ethylene triggers cleavage and translocation to the nucleus of a signaling component.

394 Mutations in BCKD-kinase Lead to a Potentially Treatable Form of Autism with Epilepsy
G. Novarino et al.
When the balance of branched-chain amino acids transported into the brain goes awry, neurological deficits can ensue.
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397 Direct Observation of Cotranscriptional Folding in an Adenine Riboswitch
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Individual RNA transcripts are observed as they emerge from RNA polymerase and begin to fold into functional forms.

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