This Week in Science

Editorial

1501 The Budget for Motherhood

Letters


News & Comment

1512 Year of Decision for ASAT Program
1515 Curriculum Changes Spark Debate at MIT
1517 Nuclear Crash
1517 Committee Cuts NSF, NASA Funds
1518 Human Frontiers at the Economic Summit

Research News

1519 Remembering a “Magical Genius”
1521 Mockingbird Song Aimed at Mates, Not Rivals
1522 Hand of Man Seen in Birds
1523 Probing the AIDS Virus and Its Relatives: Questions Raised About Peptide T’s Action ■ Taking a Closer Look at AIDS Virus Relatives ■ New Human Retrovirus Detected ■ A Test to Distinguish HIV-1 from HIV-2
1525 Imagery Comes to Infrared Astronomy
1526 A New Route to Oxide Superconductors

Articles

1527 Measurement Scales on the Continuum: R. D. Luce and L. Narens
1532 The Chemistry of Self-Splicing RNA and RNA Enzymes: T. R. Cech
1540 Chemistry of Molecular Growth Processes in Flames: K. C. Smyth and J. H. Miller

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Optical micrograph of zoning in a natural (570 million years old) zircon single crystal from Sri Lanka, viewed in a petrographic thin section between crossed polars. The field of view is 0.8 millimeter in length. The order of interference colors correlates inversely with UO2 and ThO2 contents of the layers. The microfractures perpendicular to the layering are the result of stress caused by anisotropic expansion of the unfractured layers, which have accumulated the greatest alpha-decay damage. This single crystal has a range of alpha-decay dose which spans the transition from the crystalline to the metamict state. See page 1556. [B. C. Chakoumakos et al., University of New Mexico, Albuquerque 87131]

Research Articles


Reports

1554 Recruitment of Enzymes as Lens Structural Proteins: G. Wistow and J. Platigorsky

1556 Alpha-Decay–Induced Fracturing in Zircon: The Transition from the Crystalline to the Metamict State: B. C. Chakoumakos, T. Murakami, G. R. Lumpkin, R. C. Ewing

1559 Acid Rain: China, United States, and a Remote Area: J. N. Galloway, D. Zhao, J. Xiong, G. E. Likens

1563 Statistical Short-Term Earthquake Prediction: Y. Y. Kagan and L. Knopoff

1567 Homozygosity Mapping: A Way to Map Human Recessive Traits with the DNA of Inbred Children: E. S. Landier and D. Botstein


1573 Protein-Binding Sites in Ig Gene Enhancers Determine Transcriptional Activity and Inducibility: M. Lenardo, J. W. Pierce, D. Baltimore

AAAS Meeting

1578 1988 AAAS Annual Meeting: Call for Contributed Papers

Book Reviews

1579 Malinowski, Rivers, Benedict and Others, reviewed by V. Crepazano ■ Limnology in Australia, S. MacIntyre ■ Quaternary Glaciations in the Northern Hemisphere, H. E. Wright ■ Books Received

Products & Materials

1583 Fermentation System ■ Automated Benchtop Mass Spectrometer ■ Molecular Graphics Program for PCs ■ Gas-Permeable Tissue Culture Flask ■ Chromatography Work Station ■ Spectrophotometer Software ■ Interpretative Densitometer ■ Literature