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This Week

260	Survival Bonus for People With AIDS
260	Galactic hot spots may signal supernovas
261	Drugs, depression and molecular ferries
261	Ultrafast first step for light into sight
262	Yucca site: A conclusion and controversy
262	Bone savers: Rating lifestyle and drugs
263	NMR improvements earn chemistry Nobel
263	Physics Nobelist linked materials with math

Research Notes

268	Behavior
268	Biomedicine
269	Space Science

Articles

264 NORM: The New Hot Wastes

> Cover: Oil and gas drilling rank among the traditionally non-nuclear industries recently shown to generate copious amounts of diffuse, radioactive wastes. Often, the wastes go unnoticed until contaminated equipment or mining residues trigger radiation monitors at landfills or metal smelters. In the absence of federal rules, states are now stepping in to fill the regulatory gap. (Photo: Ivars Peterson)

270 The Supersonic Question



Departments

258 Books 259 Letters

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Letters

Story behind the sculpture

Thank you for the well-presented article about my work in stereolithography ("Plastic Math," SN: 8/3/91, p.72). I would like to describe the circumstances that allowed me to do this work.

In 1989 I conceived a project to create sculptures of mathematical surfaces. In order to promote the project, I wrote a proposal for an exhibition that might travel among the $science \, and \, technology \, museums \, of \, the \, world.$ To support the proposal, I rendered convincingly photorealistic computer visualizations of how all of the sculptures (which actually existed only in data form) might look when finished and on exhibit.

As a result of promoting my sculpture exhibition proposal, I began working in April 1990 as a graphic artist to create illustrations using Mathematica for Mathematica, 2nd Ed. (Stephen Wolfram, Addison-Wesley, 1990). I have

been a freelance graphic artist "consultant" for Wolfram Research ever since, using Mathematica software. Many of the three-dimensional parametric surfaces, images of which I created for Wolfram Research, have also become subjects for sculpture.

At the Association for Computing Machinery's SIGGRAPH '90 conference, I met Andrew Hanson of Indiana University's department of computer science, who was preparing a paper called "Techniques for Visualizing Fermat's Last Theorem: A Case Study." Dr. Hanson had devised a parametrization for $x^n + y^n = z^n$ in the complex plane, both in C-language and in Mathematica. He had been unable to generate pictures in Mathematica on his computer because of memory limitations. Dr. Hanson sent me the core Mathematica code via electronic mail, and I had no trouble making pictures on the SGI Personal Iris 4D/25TG with 16Mbytes of main memory. The n = 2, 4, and 6 surfaces are shown in the Mathematica book

with a caption crediting both A. Hanson and myself.

In December 1990, I was awarded an ACM SIGGRAPH Special Projects Grant to carry out experiments in stereolithography. It was through this grant that I was able to build the series of objects, four of which were shown in SCIENCE NEWS.

> Stewart Dickson 3D Graphics Programmer The Post Group Los Angeles, Calif.

Address communications to: **Editor, Science News** 1719 N St., NW Washington, DC 20036 Please limit letters to 250 words. All letters subject to editing.

OCTOBER 26, 1991

259