Aerospace Plane.

Space: NASA's R&D budget would rise 8.5 percent. Although funding for Space Station Freedom would rise 8 percent, to $2.25 billion, the President proposes to kill a mission to fly past a comet as well as efforts to develop an advanced rocket motor for launching heavier space shuttle payloads. The proposed budget provides no funds for continuing Magellan's highly successful mission to Venus, and NASA hopes to save funds this year to keep the mission going until mid-1993 so that the craft can complete a gravity map of the planet and conduct further radar mapping. The 1993 cutoff would end the mission 1.5 years earlier than planned. And despite the recommendation of the National Research Council, the President seeks no funds for the proposed Space Infrared Telescope.

Materials and technology: Calling this "the age of tailored materials," Presidential Science Adviser D. Allan Bromley described a 1993 budget of $1.8 billion to stimulate an effort by 10 federal agencies to support and expand existing programs and to explore new opportunities for all aspects of materials science.

The proposed budget for the new, interagency Advanced Materials and Processing Program (AMPP) represents a 7 percent increase for materials science from 1992 levels. Relatively small players in materials research would get the biggest percentage boosts: NASA would receive a $29 million increase to last year's budget of $124.5 million, in part for support of the National Aerospace Plane; the Department of Transportation would get $15.5 million, an increase of $6.7 million.

The National Science Foundation (NSF) and the departments of energy and defense will continue to support most materials research. But a proposed decline of $16.7 million in the Defense Department's materials R&D budget would help reduce total support for superconducting materials from $151.7 million to $142.9 million. Research on metals, electronic materials and optical and photonic materials is slated to climb almost 7 percent. Research on other materials, including composites, biomolecular materials and ceramics, would climb at least 9 percent.

After past cuts and inflation, these increases barely boost materials funding beyond its level of two years ago.

Enjoying a 23 percent increase, to $310.7 million, the National Institute of Standards and Technology (NIST) would fare even better than AMPP. Its $67.9 million Advanced Technology Program includes $18 million for up to 10 new projects by industry, aimed at developing technologies with commercial potential. The proposal also includes $202 million for research within NIST—with boosts of 30 percent or more for manufacturing engineering, computer systems and technology assistance.

Son of Chiron: Now showing in space

It may sound like one of Godzilla's adversaries, but Son of Chiron is actually the nickname of a puzzling new object that astronomer David L. Rabinowitz discovered in the orbital range of Saturn. "We're stumped by it," says Tom Gehrels, director of the University of Arizona Spacewatch team in Tucson. "No one that I know of really understands what it is."

Rabinowitz, a member of the Spacewatch team, first spied the object Jan. 9, using a 0.9-meter telescope on Arizona's Kitt Peak. The initial report of this sighting and several subsequent observations by other astronomers appeared in an International Astronomical Union circular distributed Jan. 23.

So far, astronomers know little about the object, officially dubbed 1992 AD, except its size (about 200 kilometers in diameter), its elliptical path (which carries it between the orbits of Saturn and Neptune) and its color (redder than any known asteroid or comet).

This makes it just the second large, asteroid-like object found in that part of the solar system. Astronomer Charles Kowal discovered the first, Chiron, in 1977 as it circled the sun between the orbits of Saturn and Uranus. Ten years later, when Chiron swung closer to the sun, astonished scientists observed a comet-like halo, or coma, around its head (SN: 4/21/90, p.244). A coma suggests the existence of surface ice that begins to vaporize as it nears the sun.

Although astronomers have detected no coma around Son of Chiron, several would not be surprised if one appeared. "When Chiron was newly found there was no halo," Gehrels says. "Everybody looked for it very carefully. It was only years later that it appeared."

James V. Scotti—another member of the Spacewatch team, which uses an automated telescope to scan the night sky—adds that a coat of ice probably sheathes many objects in the solar system's cold outer reaches. "Pluto, I think, if you brought it close to the sun would look like a comet," he says. "A big one, by the way."

Because the object came nearest to the sun last May, Brian G. Marsden of the Harvard-Smithsonian Center for Astrophysics in Cambridge, Mass., says, "If it's going to show a coma, now is the time to look"—since it may still be warm enough to emit a cloud of water vapor.

Although they can offer some theories, astronomers frankly admit they have no idea where Son of Chiron originated. But whatever its origins, most astronomers agree that Chiron and Son of Chiron represent only a fraction of the enigmatic asteroid-like bodies that await discovery in the outer solar system.

Astronomers expect that as they discover more such objects, they will better understand the early makeup of the outer solar system and how these materials coalesced to form the planets. In the meantime, Gehrels says his team is enjoying all the ruckus over the new find. "We're having a field day with it," he laughs. —*M. Stroh*

National Science Foundation: In the President's spending plan, NSF would receive a nearly 18 percent R&D increase—enough to keep the foundation on track for doubling its 1987 budget allotment by fiscal year 1994. NSF's support of interagency initiatives in global change, advanced manufacturing, high-performance computing and advanced materials garnered most of the increase. The proposed budget would also allocate $48 million to continue construction of twin gravitational-wave detectors.

Global change: The Bush administration has long maintained that countries should learn more about global climate change before taking strong and potentially costly steps to counter the problem. In his fiscal 1993 budget requests, the President proposes spending $1.37 billion for the U.S. Global Change Research Program, a coordinated effort by 11 agencies. This represents a 21 percent increase.

NASA would receive 65 percent of the global change research funds, reflecting a growing dependence on data collected by satellite instruments. The administration could run into trouble with Congress over its $308.4 million budget request for the Earth Observing System (EOS), an armada of sensor-laden spacecraft that would monitor the climate for a 15-year period starting in the late 1990s. Last year, Congress slashed the President's proposed EOS budget—from $336 million down to $188.4 million—and told NASA to fashion a cheaper program that could yield useful information sooner.

Environment: The new budget proposal slates $18.3 billion—an 18 percent increase—for environmental programs throughout the federal government. With a 23 percent increase, the $5.5 billion earmarked for the Energy Department's cleanup of contamination at its nuclear-weapons facilities would constitute the single largest environmental outlay. Indeed, EPA's proposed budget—including salaries and overhead—totals only $7 billion.

Within EPA, the President has budgeted a 67 percent increase, to $101.9 million, for activities to "aggressively" implement the new Clean Air Act amend-

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