that cells die in a repetitive pattern during normal animal development. He also discovered the first gene mutation that disrupted this process of 'programmed cell death'.

"I just loved watching the cells. It's a beautiful thing to do and a challenge in the jigsaw-puzzling sense to get it all," he says.

Horvitz picked up from Sulston's work on programmed cell death in the mid-1970s. In 1986, he published a description of the first genes known to cause cell death — *ced-3* and *ced-4* (H. M. Ellis and H. R. Horvitz *Cell* **44**, 817–829; 1986). He then proved that humans have a gene similar to *ced-3*, and showed that programmed cell death occurs through similar pathways in diverse life-forms, including humans.

Some scientists also see a larger significance to this year's Nobel, especially when combined with the 1995 Nobel for work in the fruitfly and the 2001 prize, which rewarded groundbreaking work in yeast.

"These awards are a recognition that you can make major advances in medicine by studying genetically tractable model organisms," says Gerald Rubin, a vice-president at the Howard Hughes Medical Institute in Chevy Chase, Maryland. ■

Additional reporting by Declan Butler.

omy in the late 1950s and helped to launch a field that has transformed our view of the Universe. Previously, astronomers had relied on optical, infrared and radio frequencies, but X-rays revealed violent astrophysical processes that no one had expected. "X-rays show us the extreme end of things," says Martin Ward of the University of Leicester, UK. Giacconi's award is "very well deserved for half a century of work in this area," he adds.

X-rays are absorbed by the Earth's atmosphere, so Giacconi's team developed instruments to detect them from rockets. Their initial aim was to see whether solar radiation caused X-ray emission from the Moon, but once beyond the atmosphere, their detector revealed other X-ray sources such as that in the constellation of Scorpius.

Strikingly, all three prizewinners have been recognized largely for their work on instrumentation — an acknowledgement, perhaps, that many questions in high-energy astrophysics cannot even be framed until observational methods exist. ■

Additional reporting by David Cyranoski.

The Nobel chemistry prize was announced after *Nature* went to press. For coverage see

♦ www.nature.com/nature

Beer with me: Arnd Leike tries not to slur his words as he accepts his Ig Nobel prize in physics.

Bubble won't burst for spoof Nobels

Steve Nadis, Boston

The conversation last Thursday in a pub near Harvard University was about beer — but the discourse was perhaps a tad more elevated than the usual drunken banter.

For his work on the exponential decay of beer froth, Munich University physicist Arnd Leike was due to receive the 2002 Ig Nobel prize in physics. His companion that evening was Harvard chemist Dudley Herschbach, a Nobel laureate.

Herschbach pointed out that small beer bubbles disappear first, in the same way that small black holes evaporate faster than big ones. "There's something cosmic going on here," he said. The two then strolled to the nearby Sanders Theatre for the twelfth annual awards ceremony of the Ig Nobels — Harvard's enduringly popular spoof on the real Nobel prize awards.

"Every winner was chosen for work that first makes people laugh and then makes people think," explains the event's organizer, Marc Abrahams.

This year's ceremony featured the world premiere of *The Jargon Opera*, 'a jargon-free mini-opera in four acts', gamely featuring Nobel laureates Herschbach, William Lipscomb and Richard Roberts.

David King, chief scientific adviser to the UK government, was also there. His appearance may have healed a rift that opened in 1996 when his predecessor Bob May warned that the Igs risked damaging science by ridiculing and trivializing worthy work (see *Nature* **383**, 291; 1996).

"I don't want to be critical of Bob, but I think this is all in good fun," King says.

King was personally able to congratulate his countryman Chris McManus of

University College London, who captured the medicine prize for a 1976 *Nature* paper, "Scrotal asymmetry in man and in ancient sculpture".

Navel-gazing brought a prize for Karl Kruszelnicki of the University of Sydney. His survey of the qualities of human belly-button fluff earned him the interdisciplinary research prize. And Charles Paxton of the University of St Andrews, UK, accepted the biology prize for a report he co-authored claiming to have found that sexual arousal in ostriches is enhanced by the presence of humans.

Vicki Silvers of the University of Nevada-Reno and David Kreiner of Central Missouri State University shared the literature prize for their study, "The effects of pre-existing inappropriate highlighting on reading comprehension". The message of their paper, said Kreiner, is "don't buy a textbook that has been highlighted by an idiot".

Theo Gray of Wolfram Research won the chemistry prize for creating a three-dimensional periodic table of the elements that also serves as a coffee table. During his acceptance speech, Gray apologized to his parents for dropping out of graduate school, noting that "this is as close to academic distinction as you're going to get out of me".

Leike toasted the audience and sipped beer from a graduated cylinder. "I hope my paper will help get people interested in science," he later told *Nature*.

Herschbach agrees with the sentiment. "The whole reason for taking part in something like the Igs is to convey the message that scientists are really kids at play," he says. ■