

Lobster telescope has an eye for x-rays (Forwarded)

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LOBSTER TELESCOPE HAS AN EYE FOR X-RAYS

UK astronomers have been at the forefront of designing a revolutionary new X-ray telescope that is based on the eyes of a lobster. By replicating the crustacean's ability to observe objects all around it without turning its head, scientists are confident that the Lobster instrument will enable a major breakthrough in X-ray astronomy.

The sky viewed at X-ray wavelengths is a violent and unpredictable place. Many sources brighten without warning,

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then vanish just as suddenly. Others vary cyclically over a period that can range from minutes to years.

The ideal X-ray telescope, therefore, would observe "all the sky, all of the time" -- an ideal which might seem unattainable, but which is approached by the Lobster concept, to be described by Dr. Nigel Bannister (University of Leicester) at the RAS National Astronomy Meeting, University of Leicester, on 4 April.

"The great advantage of the Lobster design is an almost unlimited field of view," said Dr. Bannister. "This makes it ideal for use as an all-sky X-ray monitor."

In the 1970s, lobsters and some other crustacea were found to view the world through remarkable eyes which focus light over a very wide field of view by means of reflection, rather than by refraction or bending of light, as in the human eye.

The lobster eye -- essentially an array of tube-like channels with a square cross-section -- was proposed as the basis of an X-ray "all-sky monitor" by Roger Angel of the University of Arizona in 1977. However, it has taken almost 30 years -- and nearly 15 years from the first successful X-ray measurements with such structures in 1992 -- to perfect the optic technology.

Only now is it possible to consider