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# Patients in a New LIGHT

**Fiber optic lighting generates neither electromagnetic fields nor UV or infrared radiation, making it ideal for use in conjunction with Magnetic Resonance Imaging. The Shiga University of Medical Science in Tokyo has employed fiber optic lighting solutions successfully.**

As always, in modern medical technology it is the human being, whether patient or physician, who is the undisputed center of attention. The foremost goal of innovative products and solutions is not only to improve the health and quality of life, but also to lengthen it. A good example of the incredible advances achieved by modern medical technology is MRI, which stands for Magnetic Resonance Imaging. This innovative technology allows doctors and radiologists to get a remarkably precise picture of the inner organs without using X-rays. Armed with this tool, modern medicine has at its disposal not only a thoroughly innocuous, but also a highly precise diagnostic tool.

*Prof. Toshiro Inubushi of the Shiga University of Medical Science made significant contributions to the development of the MRI technology.*

## More than just a diagnostic instrument

This revolutionary technology, praised as one of the most important advances of modern technology since the discovery of X-rays more than a century ago, was first applied mainly as a diagnostic tool. In the meantime the technology has been significantly further developed by such suppliers as General Electric (GE) and Siemens, who posses years of experience in clinical MRI. Thanks to this technology, surgeons have at their fingertips physiological and anatomical information online, even during a surgical intervention. The newest MRI devices used in medical diagnostics provide highly detailed images of anatomical structures with good contrast resolution, without the use of X-rays. Thus, the skull or the knee for instance, can be shown either in two or three dimensions, and even the smallest blood vessels are seen with the finest detail. Furthermore, the design of the magnets allows the physician to have direct contact with the patient during the entire examination.

GE's 'Signa Spi', has been an attention-getter. The full body scanner offers unparalleled imaging possibilities which can be used almost exclusively for minimally invasive and even non-invasive procedures. 'Signa Spi' is a new concept in the field of Magnetic Resonance Technology. Its key element is a specially designed imaging magnet that allows radiologists and surgeons to carry out a multitude of operations. With this new tool they can also monitor precisely the movements of their instruments inside the human organs at all times. In Japan 'Signa Spi' was first installed in cooperation with the Shiga University of Medical Science (SUMS) and was the culmination of years of research and development cooperation between GE and Professor Toshiro Inubushi of SUMS.

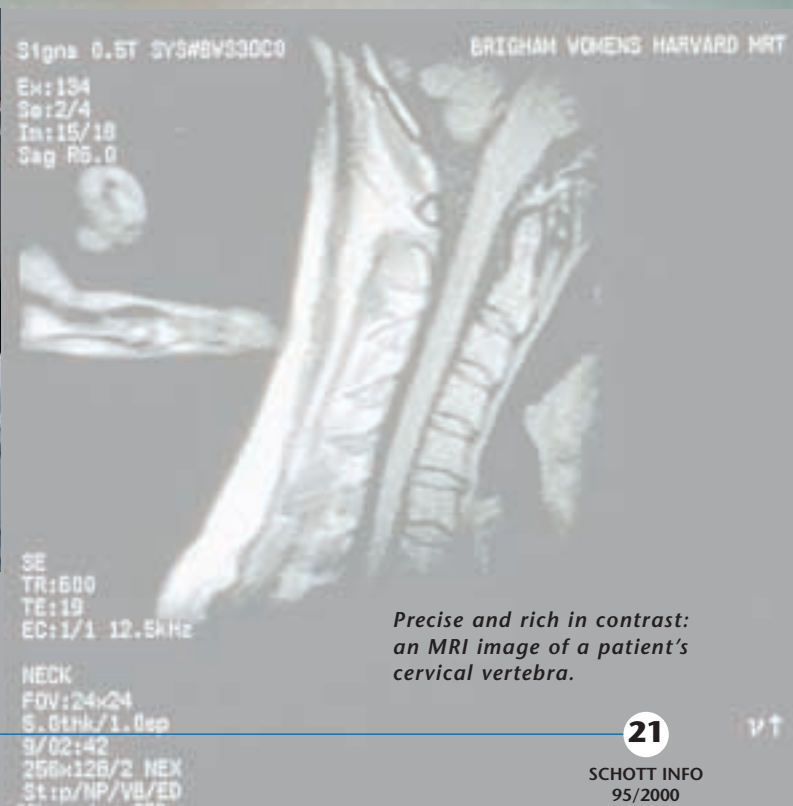
## New perspectives for fiber optics

With MRI technology, no additional magnetic fields can be introduced into the operating room. The better the operating room is shielded from electromagnetic fields, the better the results from the MRI examination. Fiber optic lighting generates neither electromagnetic fields nor UV or infrared radiation, solving a number of the illumination problems. The driving force behind the fiber optic solution was Professor Toshihiro Nakamura of the SUMS Facilities Division.

The special circumstances surrounding MRI technology open up new applications for fiber optic lighting by Hoya Schott, a joint venture founded in 1988 between Hoya, Japan's largest manufacturer of optical glasses and Schott Glas from Germany. The specialists from Hoya Schott see opportunity to jointly develop fiber optics lighting technology for further applications with MRI technology ■

*All the interior lighting in the ceiling and walls uses fiber optics.*

*The patient is bathed in the light from four light guides with a color temperature of 6000 Kelvin. Combined with a 3000 Kelvin halogen lamp, a color temperature can be produced which enables doctors to carry out examinations in conditions close to daylight.*




*Precise and rich in contrast: an MRI image of a patient's cervical vertebra.*