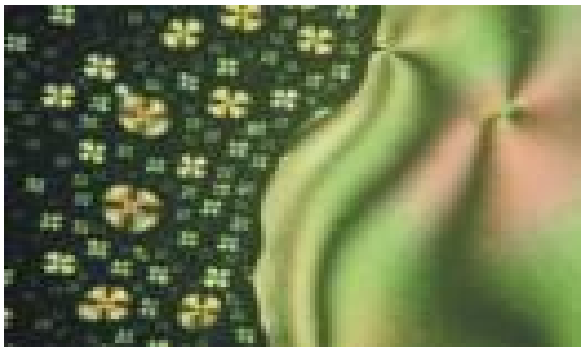
FIRST PRINCIPALS
Technology Transfer & Commercialization

LUMINESCENCE TECHNOLOGIES



The Opportunity

Researchers at the National Institute of Advanced Industrial Science and Technology (AIST) have developed significant **expertise in a variety of luminescence technologies.**

The patented technologies enable unique applications, as described below, and are now available for licensing.

Intellectual Property

Patents protecting the intellectual property are described as follows:

#	Patent	Key Features	Inventors
1	6441217	Ferulic acid derivative useful as a liquid crystal material and is extracted easily and inexpensively from the waste oil of rice bran, which is normally treated as industrial waste. Related to 6,517,739.	Sugino; Shimizu; Monobe
2	5858538	Luminescent fullerene composite with an auxiliary substance layer that photoluminesces strongly when irradiated with an argon laser beam.	Wen; Minami
3	6550934	Easy to manufacture lamp which emits condensed light (e.g. fluorescent or phosphorescent), generated by irradiation with a lamp or a laser beam generated by excitation with a flash lamp.	Tao; Nakazato
4	6517739	Ferulic acid derivative useful as a liquid crystal material. Extracted from waste oil of rice bran. Related to 6441217.	Sugino; Shimizu; Monobe
5	6280655	High-luminosity stress-luminescent material emits luminescence when rubbed, cut, impacted, compressed, or placed under tension. Does not require conventional stimulus such as UV light, electron beams, X-rays, electric fields, or other chemical reactions.	Xu; Watanabe; Akiyama; Nonaka
6	6159394	Stress emission material with an FeS2 structure that significantly improves the efficiency in converting mechanical energy into optical energy.	Akiyama; Xu; Nonaka; Watanabe
7	6117574	Triboluminescent, inorganic material capable of emitting light of an intensity suitable for practical applications when excited with mechanical energy.	Watanabe; Xu; Akiyama
8	6413447	Photoconducting silicon liquid crystal materials. Electron transferring material formed by a novel porphyrin silicon complex and useful as a photofunctional charge-transfer material.	Sugino; Shimizu; Monobe
9	6299844	Compact photochemical reactor with improved irradiation efficiency for carrying out a wide range of photoreactions including photosynthesis, photodecomposition, photoreduction/photooxidation, or photosterilization Does not require a vacuum chamber or oxygen-free chamber even when vacuum UV is used.	Tao; Nakazato
10	6169288	Laser ablation type ion source which enables efficient extraction of ions from a solid raw material, is small in size, and is easy to adjust.	Horino; Mihara; Chayahara; Kinomura; Tsubouchi
11	6339954	Method of analyzing concentration of target substance in a liquid or gas using a quartz oscillator, without the need for pretreatment.	Naganawa; Noda; Tao; Tominaga

Organizational Capabilities

AIST (National Institute of Advanced Industrial Science and Technology) is Japan's extensive public research organization established in 2001.

Comprised of more than 50 autonomous research units in various innovative research fields and employs about 2500 research scientists and well over 3000 visiting scientists.

AIST Home Page:

www.aist.go.jp/aist_e/about_aist/index.html.

For More Information

AIST is seeking qualified licensees for this technology and will provide assistance for its commercialization. Consideration and will be provided to a range of financial, strategic, and commercial investment options. Certain circumstances will warrant consideration for nominal funding from AIST.

Contact: Mike Allan, Vice President
Tel: 216-881-8526
email: **mfallan@firstprincipals.com**
Website: http://www.firstprincipals.com