

## Highly photostable BODIPY dyes as laser generators and fluorescent probes

CSIC and Universidad Complutense de Madrid have developed new boron-dipyrromethene (BODIPY) derivatives with high photostability and laser efficiency. The new dyes can be easily prepared from commercial compounds, cover a wide range of emission wavelengths and can be useful as active mediums in dye lasers or as markers in analysis techniques. We are looking for a company interested in a patent licence.

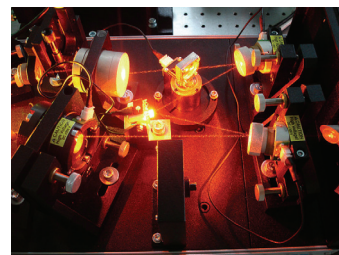
### An offer for Patent Licensing

#### Description of the offer

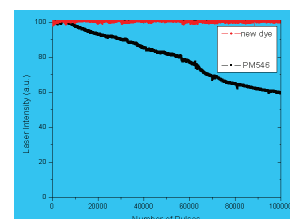
The use of fluorescent dyes has increased in the last years due to their utility as sensors in biology and as laser generators, among other applications. In this sense, BODIPY dyes are especially interesting due to their elevated laser efficiency and low sensitivity to medium effects.

Despite the excellent properties of known BODIPY dyes, the search for new derivatives with improved properties is of great interest in applications involving the use of lasers, where dyes are subjected to strong working conditions and show stability problems. In these cases, their activity and efficiency is affected and reduced over time.

A new family of BODIPY dyes able to emit at different wavelengths has been prepared. The new compounds are obtained in one step from commercially available compounds following an efficient and straightforward process using inexpensive reagents. Their use as a laser dyes has been tested and it has been observed that the new dyes show higher photostability and efficiency than common laser dyes. The new compounds could be used in a wide variety of applications, not only as laser dyes but also as molecular probes in analytical techniques, light emitting diodes or photosensitizers for photodynamic therapy.



The new compounds can be used as laser dyes



The new dyes show higher photostability than common laser dyes

#### Innovative aspects and advantages

- Compared to other laser dyes, the new BODIPYs show greater photostability (the new dyes maintain 100% of emission after 100000 pump pulses at 5 mJ/pulse and 10 Hz repetition rate, whereas similar commercial dyes only maintain 60% of emission in the same conditions) and laser efficiency.
- Some of the dyes commonly used, need to be pumped at very specific wavelengths. The new dyes can be pumped at 355 nm or 532 nm, which are the common pump wavelengths in dye lasers. Furthermore, the new family of BODIPYs covers a wide range of lasing wavelengths (the new compounds are able to emit from the green to red regions of the visible spectrum).
- A lot of BODIPY dyes have very complex structures that require a lot of synthetic steps and difficult their scale-up. The new dyes are obtained in one step and with good yield from known dyes using inexpensive reagents.
- The new dyes can be used as a source of radiation in active medium for lasers and also as fluorescent markers in optical microscopy, in LED devices and in photodynamic therapy.

#### Patent Status

Priority patent application filed (with international effect)

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