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BV 2016-35 - *Creating and Delivering Novel Neuromodulatory Signals*

APPLICATION: Neuromodulation of pain conditions

SUMMARY: Neuromodulation involves influencing the signals in the nervous system through the application of an external stimulus, for example, with the delivery of an electrical pulse through a stimulator device. A pulse generator delivers a signal of a certain pattern through an electrode that is implanted at a neural target.

In existing neuromodulation paradigms, the pattern of delivered pulses is repetitive and does not always harmonize with neurophysiology. Input signals for neural stimulation may be white or other noise or perhaps periodic signals. However, periodic signals may be ineffective, boring, or possibly even detrimental to an organism, and pure noise can be ineffective. Furthermore, FDA-approved waveforms currently available in stimulation devices are rudimentary and lack sophistication, while investigational waves are simplistic or random.

The present invention provides neuromodulation through novel waveforms derived from alterations of all the variables of the stimulation, including amplitude, number of pulses and pulse width. The waveforms provide stimulation in a predictable yet non-repeating manner that can be influenced by numerous inputs in order to optimize stimulation efficacy.

Patent application pending