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"Advances in Power Ultrasound Research and Technology: Food and Bio-product Applications"

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Innovative MMM Technology for Implementing Power Ultrasonic Technique in Food-Processing Industry

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Abstract:

Until recently, the traditional high power ultrasonic applications are usually found in fields like: Industrial Ultrasonic Cleaning, Plastic Welding, Mixing and Homogenization. However, new industrial ultrasound related applications such as ***Sonochemistry, Extractions, Waste Waters Treatment,*** etc. are becoming more and more important every day.

The majority of the mentioned ultrasonic applications are based on fixed-frequency, well-tuned ultrasonic sources where a large number of design and matching parameters must be respected. These basically requirements limit quite dramatically the scope of applications to practical cases realized at laboratory-scale or to limited sample applications.

Extensive field tests conducted by known professionals active in the field of ultrasound have shown that in order to achieve a high efficiency, the ultrasonic systems must be well tuned to the load. Since most of them work inherently in non-stationary conditions, they must ideally continuously adapt themselves to the load. With this important requirement in mind, novel signal processing techniques have been developed.

As a result ”MMM technology” has become the first to succeed in his attempt to apply ***”Wideband-Frequency High-Power Ultrasonic Agitation”*** to almost any existing technological equipments, regardless of their masses, load sizes and particular operating conditions. Furthermore, these new signal processing techniques can be easily implemented without involving significant design modifications of existing technological equipments.

In the first part of this presentation we will give an overview of the signal processing techniques used by ”MMM technology” as well as show different original and amazing applications with a particular emphasis to ***Food Industry Applications***.