MAGELLAN ε

NANOPARTICLE TRACE CHARACTERIZATION IN WATER

The ultimate nanoparticle analyzer for water characterization

Push your analysis few steps further !

IDEAL FOR

Online monitoring of water treatment
Menbrane integrity montoring
Ultrapure water monitoring
Water quality insurance
Filtration processes
Pollution detection
… and more

www.cordouan-tech.com

CORDOUAN Technologies
Enlight the Nanoworld

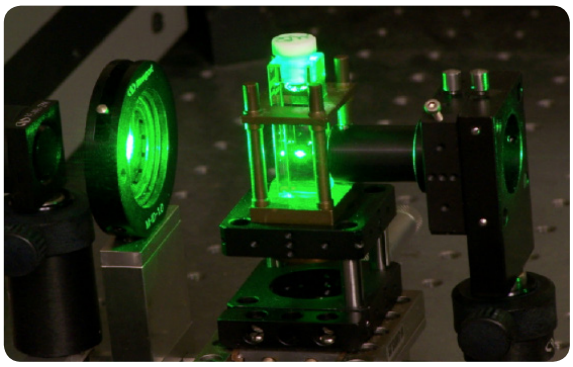
MAGELLAN$^{\varepsilon}$

- Unique patented technology
- Nanoparticle size and concentration analysis
- Trace analysis down to ppt (ng/L)

Breakthrough technology inside

MAGELLAN$^{\varepsilon}$ is a unique **nanoparticle analyzer** based on a patented breakthrough technique called Laser Induced Breakdown Detection. ***MAGELLAN***$^{\varepsilon}$ measures **size distribution and concentration** of **nanoparticle traces** in water with an unprecedented sensitivity and resolution.

MAGELLAN$^{\varepsilon}$ is the result of a successful joint development between **CORDOUAN Technologies** and the Karlsruhe Institute of Technology **(KIT)** in Germany.



Download technical notes
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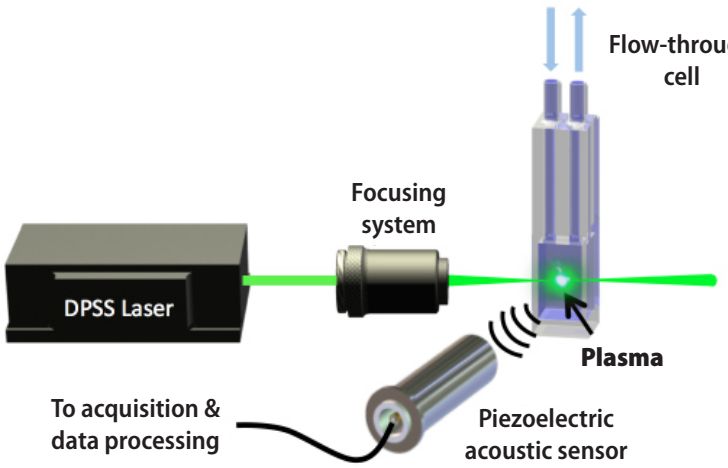
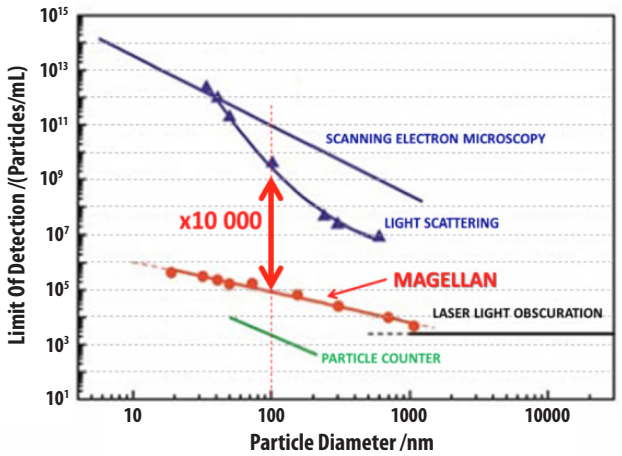
LIBD Principle

LIBD is a field proven technology issued from more than 20 years of research in KIT-INE; basically, a nanosecond pulsed laser is focused into a liquid containing nanoparticles to be detected. Each time a particle crosses the laser beam, a **plasma** is created and detected by an **acoustic wave sensor**.

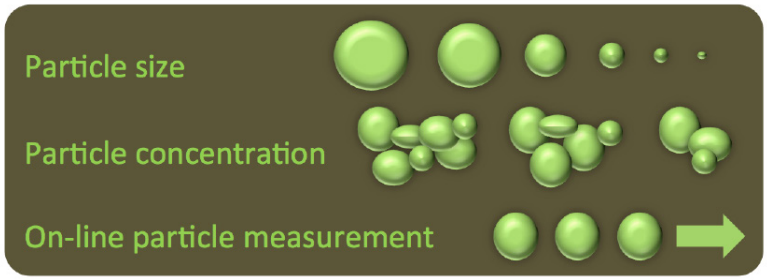
Size distribution and concentration are then deduced from the plasma statistic by the use of an advanced proprietary algorithm and calibration data.





- Broadest particle size measurement
- Sensitivity: more than 10 000 times superior to conventional light scattering techniques

Unprecedented performances, Unequaled sensitivity & resolution

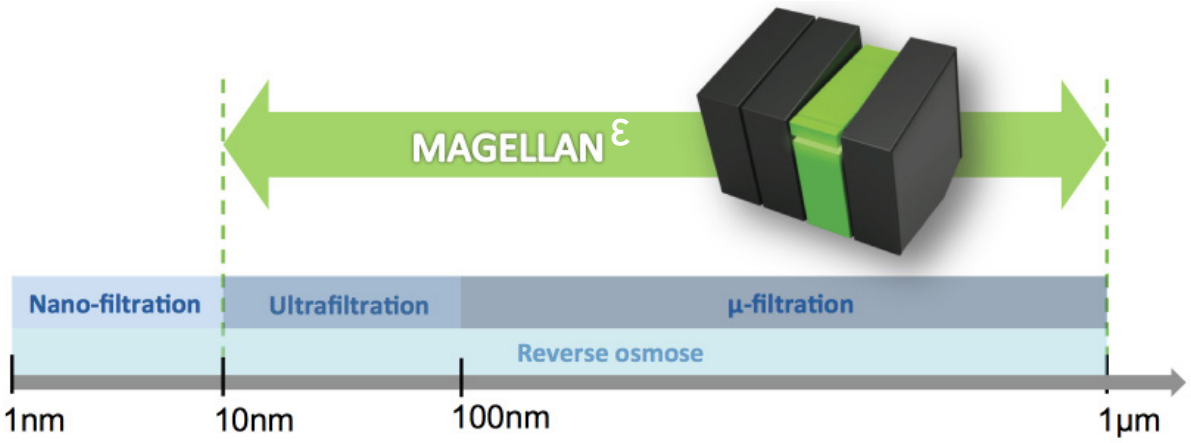


Nanoparticle trace characterization in water

Magellan's Key benefit

- ✓ Number density : as low as 10^4 particles/mL
- ✓ Broadest particle size range : from 10 nm to 1µm
- ✓ High size resolution through 8 channels
- ✓ Unequaled sensitivity : down to ng/L (ppt) range
- ✓ Compact and robust design : transportable and operational in all environments
- ✓ Versatile and easy-to-use :

- Variable flow rate
- No sample preparation required
- Limited maintenance (highly reliable design)
- In line and under pressure measurements (up to 60 bars)
- Advanced Proprietary algorithm for accurate results
- Various sample cell configurations: static or flow-through cell



Targeted applications

Drinking and industrial water quality insurance

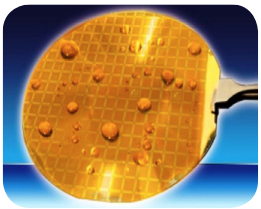
Membrane integrity online monitoring (fouling & breakthrough)

Push your analysis few steps further

Pollution detection of natural water resources

Colloids in primary coolant of nuclear reactor system characterization

Ultrapure water monitoring for semiconductor industry



MAGELLAN$^{\varepsilon}$

Nanoparticle trace characterization in water

Specifications	
Particle size range	10 – 1000 nm (Up to 8 channels)
Concentration range	10^4 to 10^{11} part/ml (Typically 10 ppt with 20nm particles)
Accuracy	+/-10% (depending on measurement time)
Calibration	Certified reference materials polystyrene (NIST) or customer reference
Sample preparation	None – Standard laboratory practices for ultra-trace sample analysis
Standard sample cell configuration	Static cell : 3.5ml / Flow-through cell: up to 5 bars – 275µL - 4 mL/min (pump depending)
On demand sample cell configuration	In situ / High pressure cell: up to 60 bars - 4 mL/min
Signal processing	
Measurement technology	Laser Induced Breakdown Detection (LIBD)
Laser source	DPSS - Power <50mW - Pulsed laser 100 Hz – TEM00 - @532 nm – Lifetime 2 Giga shots
Data processing algorithm	Proprietary algorithm software developed with KIT : ASTROLIBD®
Detector	Piezoelectric acoustic wave sensor (Patented)
General	
Operating conditions / Storage conditions	5°C to 40°C / -10°C to 50°C – Relative humidity < 70% non condensing
Computer interface	USB 2.0 – RJ45 – Serial Port - Windows 7 professional – 64-bit
Dimensions	40 cm x 30 cm x 40 cm (HWD)
Weight	Analyzer < 25 kg / Computer < 10kg
Power	100-240 VAC, 50-60 Hz, 10A max
System Compliance	
CE certification	CE marked product - Class I laser product, EN 60825-1:2001, CDRH
Ingress Protection (IP)	Housing IP54, Optics IP65 – (protection from dust and water)

Flow-through cell

Standard static cell

*The **MAGELLAN** analyzer and its components are protected by : German Patents No.: DE 19833339C1 DE 19602048C2, DE 10200605122 7B9; European Patent No.: EP 1 918 694 A1; Worldwide Patent No.: WO 0006993A1; other patent pending.*

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